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AMERICAN GAS JOURNAL

Established 1855 Pioneer of the Gas Industry

Manufactured and Natural Gas.

KITSON

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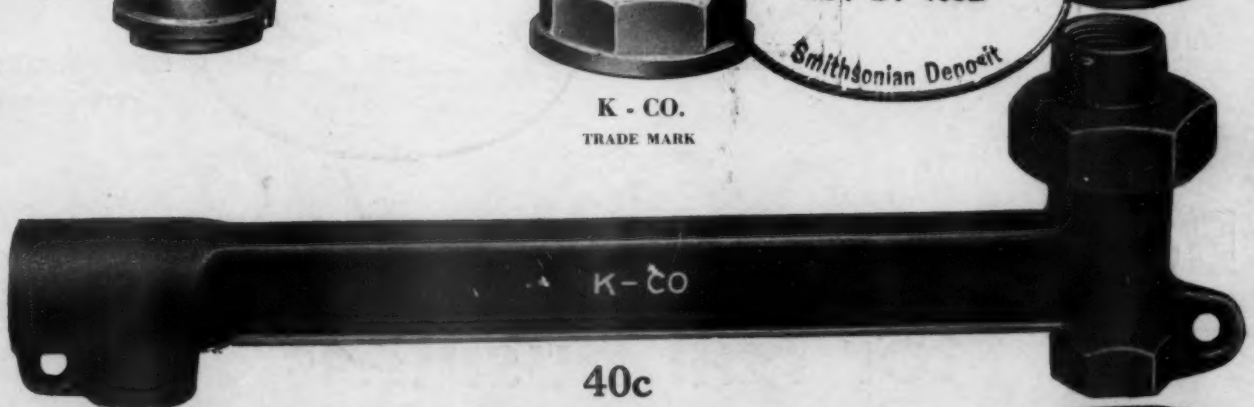

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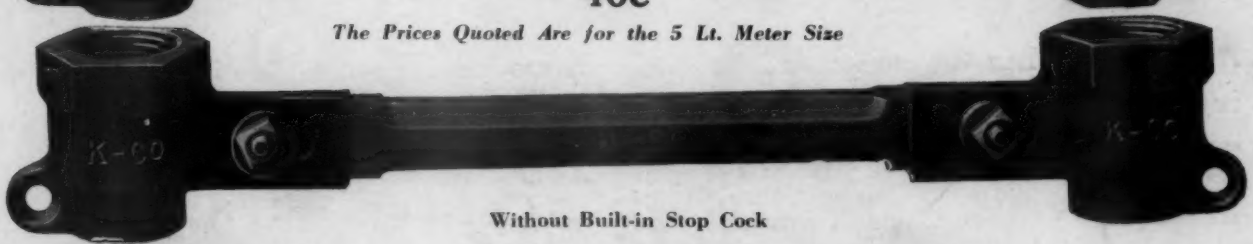

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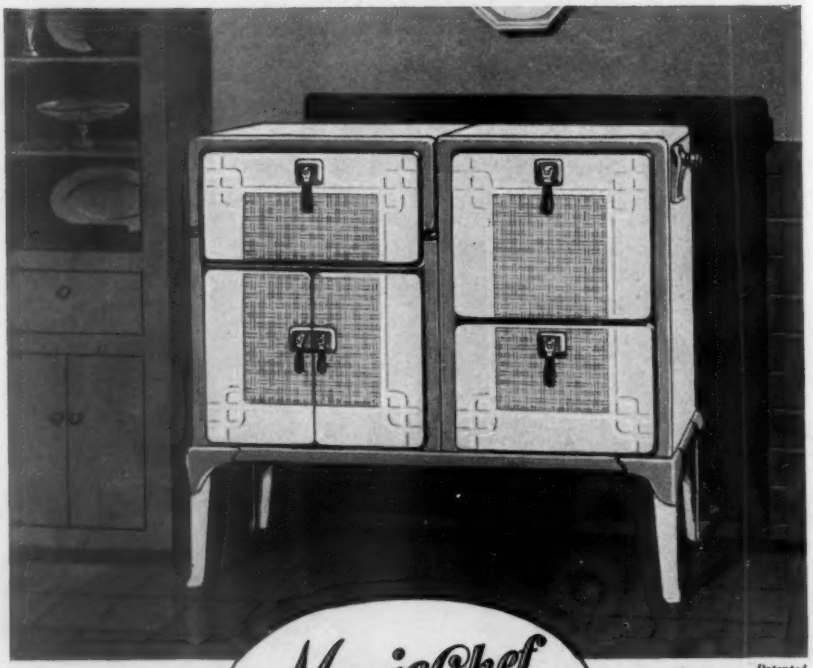

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At this time when the consumer is revolting against merchandise whose trashy quality is smoke-screened by low prices—

At this time when millions of women have reached the limit of their endurance in putting up with outmoded and outworn gas stoves—

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AMERICAN
GAS JOURNAL
Established 1859 — *Pioneer of the Gas Industry*

Manufactured and Natural Gas

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S. G. KRAKE, *President and Treasurer* — A. M. GLEASON, *Secretary*

H. M. RILEY, *Editor*

R. S. McBRIDE, *Consulting Editor*, Washington, D. C.

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AMERICAN GAS JOURNAL, November, 1932, Vol. 137, No. 5. Published monthly by American Gas Journal, Inc., at 34 Crystal St., East Stroudsburg, Pa. Executive and Editorial offices at 53 Park Place, New York, N. Y. Entered as second-class matter, October 17, 1928, at the postoffice of East Stroudsburg, Pa., under the Act of March 3, 1879.

Subscriptions $2.00 per year, including postage in the United States, Mexico, Cuba, Porto Rico, Hawaii or the Philippines; in Canada $4.00; foreign $4.00. Single copies 25 cents.

R. H. PIERCE, *Advertising Rep.*
53 Park Place, New York, N. Y.

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FALL'S SPOTLIGHT POINTS TO ~

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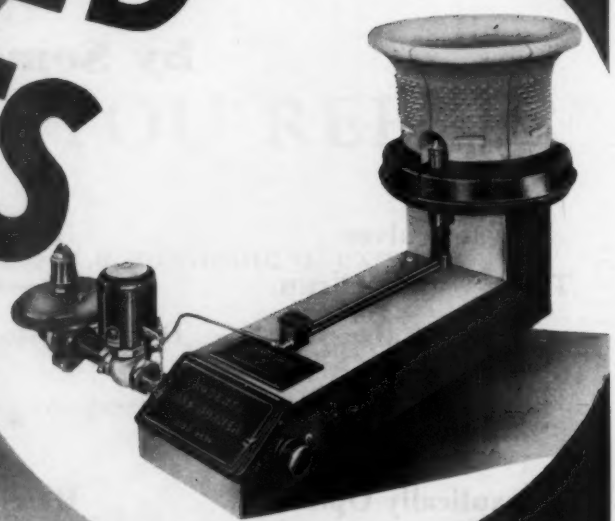
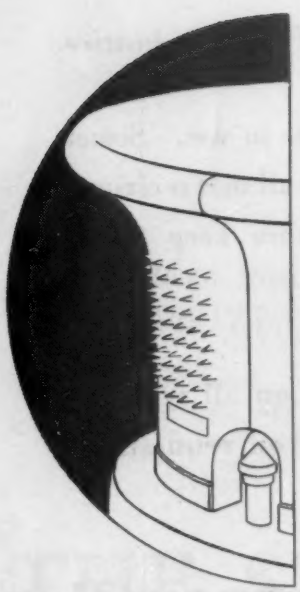


with self-supporting RADIANTS



Above picture is close-up view of new Roberts radiants.

The improved Roberts Standard Burner is ready! Roberts-Gordon engineers have made good their promise to have it available for Fall shipments. This burner retains all the ten famous Roberts features, plus—the new type Roberts Radiants.

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ROBERTS
CONTROLLED
GAS HEATING UNIT

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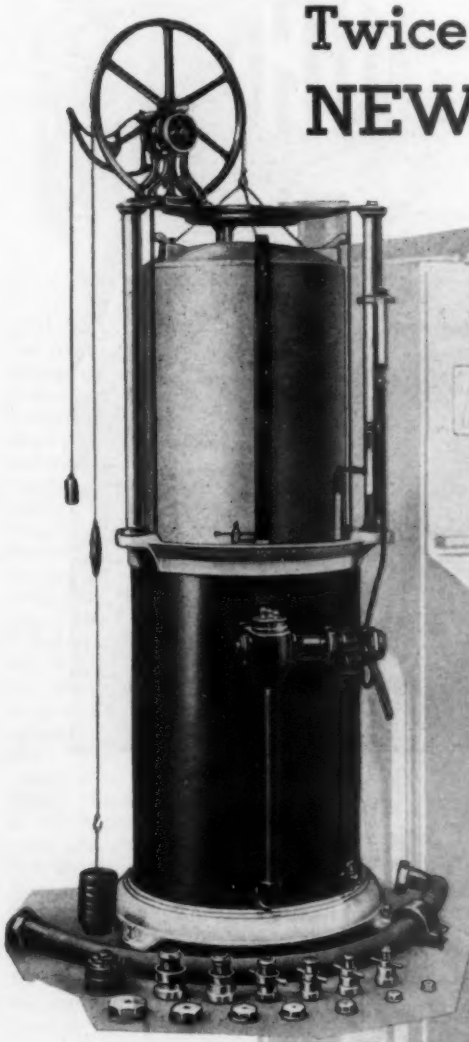

Standard 5-foot American Meter Prover.

EVEN the larger meters can now be proved at a rate equal to or in excess of rated capacities, with the new 5 and 10 foot American Meter Provers.

The new features include, a greatly reduced pressure loss at the meter inlet; an increase in the airway diameter from the interior of the bell to the free end of the hose; a larger dry well, hose and connection to conform to the increased area of the airway; and a handy gate valve which replaces the cock formerly used.

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The immersion type cubic-foot bottle illustrated (at the right) is the accepted standard, available in nickel or chromium-plated copper bottle. All parts are built to the high standards of American Meter Company.

A 1/10 cu. ft. bottle is also made for laboratory purposes as well as a portable cubic-foot standard for use in the field.

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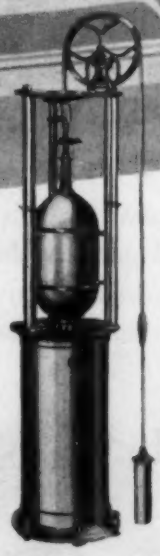
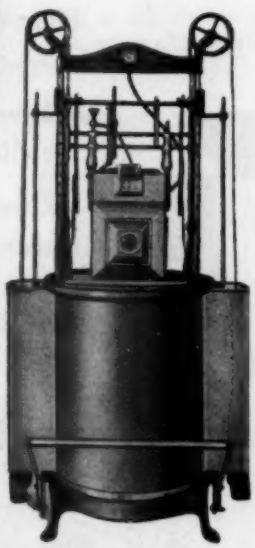
Carriage adjustable for meter sizes up to 10-B-300 and 10-A-375. Connections to air pressure quickly made by means of lever. Complete equipment includes submarine light and lazy-tongs to facilitate handling of meters. Complete description in Bulletin AG-1.



At left: Immersion type Cubic-foot bottle.



At right: Hydropneumatic Meter Tester (Patented).

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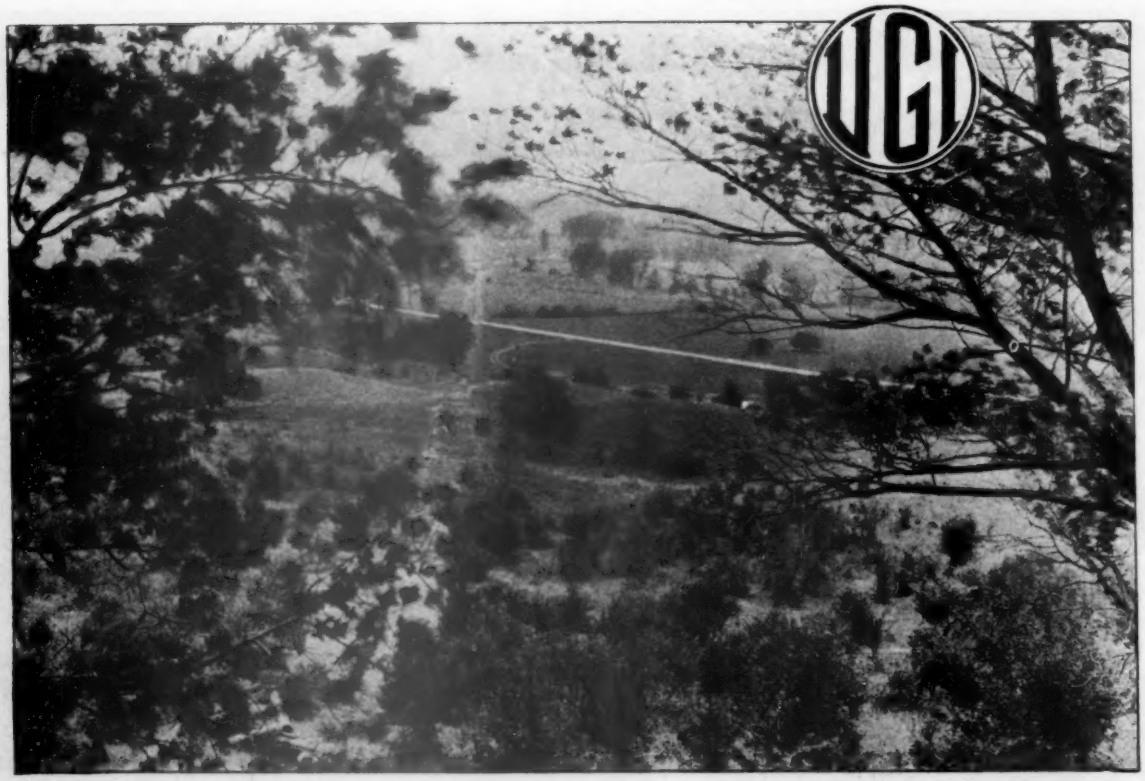

Bringing Natural Gas into Syracuse

This 18" Natural Gas line from Onandaga to the Hiawatha Avenue Plant of Syracuse Lighting Co. involved all types of construction from cross-country work to highways through thickly populated sections.

It was built within scheduled time and with an important saving to the client.

Completely organized with equipment and personnel for pipe line construction and gas distribution work, we can efficiently and economically handle jobs of any size, from a few thousand feet of gas distribution main to cross-country oil, natural gas or gasoline lines of any length.

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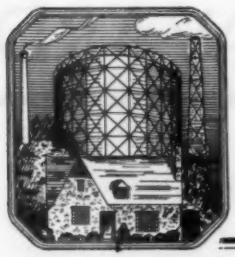

As We See It

The Encyclopedic Aspect

CLEARLY, in the gigantic effort which is now under way to pull business and industry out of the depths, new ideas and methods will occupy a tremendously important role. And new ideas and methods are usually the brain children of men who possess outstanding versatility; in short, those of us who hope to contribute to any forward movement must not only know our own business well, but we must have a reasonably accurate knowledge of the procedure of businesses and institutions which we serve.

Several years ago, in these columns, we called attention to the desirability of range salesmen knowing the rudiments of cooking. This matter was also stressed by Mr. David F. Kahn, President of Estate Stove Company, in a convention address during the current year. We still believe that such a goal is worth heading toward.

At the convention in Atlantic City last month. during the discussion incident to a meeting of the Industrial Gas Section, we noted that a large industrial customer in Brooklyn was saved for gas against the impending introduction of oil, by reason of the gas salesman showing the customer where he could effect substantial savings by changing a certain process. Surely this was versatility of a high order.

In selling fireplace heaters we wonder how many salesmen are qualified to discuss with the customer the relation of a particular type or design of heater to the general decorative or period scheme of the living room. Perhaps if more salesmen had this ability we would sell more heaters, and thereby further emphasize our statement that our fuel rids the customer of the ash nuisance.

Are our househeating salesmen sufficiently posted to examine a heating system and note any piping defects or improper location of radiators? They should be.

Do we have enough industrial salesmen who can quickly size up a manufacturing process—from the raw materials storeroom to the finished product on board the freight car—and thereby confer with the prospect with a maximum of selling effect?

And so, through the whole gamut of our activities we might run.

Unquestionably we need men of figuratively encyclopedic versatility. Right now the gas industry should set itself to the task of fostering and helping to develop men who can use their imagination in a practical sense; and, while we have done a fairly good job along these lines in the past, the future will demand more of such brain cultivation if we are to prosper and truly serve our customers.

The Stage Is Set

SINCE the gas industry and its output are essentially linked in with general business conditions, it is patent that any forward movement will be reflected in, not only increased consumption per meter, but more customers as well. Naturally, everyone is speculating on the return of business and its rate of increase as well.

We believe that there are encouraging signs in the offing; or rather, we feel that the mathematics of the situation tell us that things will, or should, go ahead in the near future. This statement is based upon the fact that just about everyone is skimming along on a depleted wardrobe; houses are needed and present houses are badly off for repair; industrial plants have run-down and obsolete equipment and machinery; and so on through the entire list. In other words, we must be just about at the point of ultimate deflation with our uppers on the ground. It can't be long now until we must spurt forward.

This condition of universal depletion presages a goodly use of gas when the spurt comes—that is if we are prepared for it. Nearly every commodity or supply that will be bought can make use of gas in some stage of its manufacture. Better still, the wage and salary earner, with fatter envelopes, will think more interestedly about househeating, air conditioning for the home, and other labor-saving, comfort-giving uses for gas in the home.

No one can predict the status of business for say a year hence, but we do claim that the stage is set for a forward movement and the gas industry will profit thereby in a way that should be to our entire liking.

For The Most Good

OF necessity any meeting of American Gas Association must handle a great many topics by way of papers, addresses and committee reports, and it is amazing how much good is accomplished with the relatively small amount of time available. Even so, it is a fact that one of the most important phases of a convention is the discussion attendant with the various papers. Consequently, with the great number of papers presented, not an over-supply of time is available for discussion.

The old American Gas Institute followed the practice of mailing out preprints of the convention papers sufficiently in advance so that many men could read over them and come to the meeting with prepared discussion. Thus, little or no time was devoted to the entire reading of the paper and, as a consequence, there was a maximum of discussion.

Unless there is some insurmountable objection that has made itself evident in recent years, it might be well to ponder over the advisability of re-instituting American Gas Institute method of handling the meetings. We know of several cases in times past where men had good discussions prepared and there was not time to give the same in open meeting.

Hence, with most of the papers on hand at the meeting and a goodly volume of discussion, gas men would be assured of considerable benefit.

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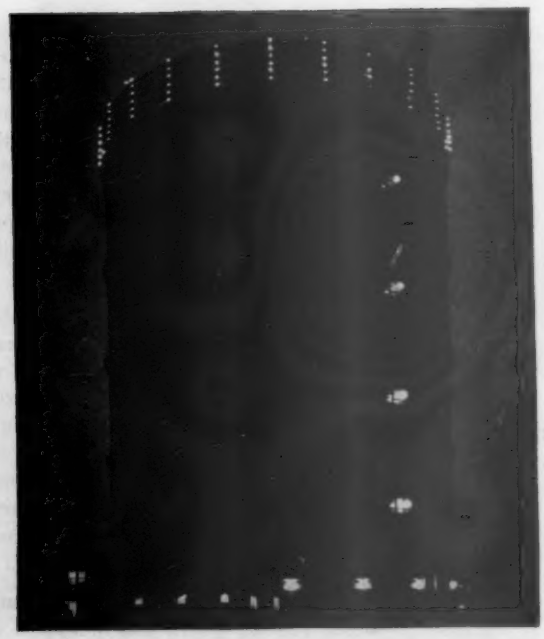
Eight Years of performance over a wide range of temperature, climatic and gas storage conditions covering the entire country has established the eminence of the M.A.N. Waterless Gas Holder.



During this period there have been erected and placed in operation in the United States and Canada 50 Holders, ranging in sizes from 500,000 to 20,000,000 cubic feet capacity, aggregating over 300,000,000 cubic feet of storage.

Such eminence is attainable only by the smooth, even, dependable operation of the piston seal resulting in a uniform pressure, during inflation or deflation alike, for the entire capacity of the

M.A.N. Waterless Holders

● Built exclusively in the United States by

Coal Gas, Carburetted Water Gas, Blue Water Gas, By-Product Plants—DeBrouwer Charging and Discharging Machines—Waste Heat Boilers—Purifiers—Condensers—Tar Extractors—Thickening and Filtering Equipment—Feld Scrubbers—Fast's Couplings—Tanks—Gas Holders.

THE

BARTLETT HAYWARD

COMPANY

BALTIMORE MARYLAND

Vol. 137 No. 5
November, 1932

AMERICAN GAS JOURNAL
Established 1859 Pioneer of the Gas Industry

HENRY M. RILEY
Editor

American Gas Association Holds Fourteenth Annual Convention

Gas Industry Considers Ways and Means for Meeting Fuel Competition and Developing Load. Lack of Exhibits Does Not Affect Enthusiastic Determination to Carry On

IT IS felt that the keynote of the Fourteenth Annual Convention of American Gas Association held at Atlantic City last month was concerned with the gas industry as a whole taking full cognizance of the problems it faces, particularly problems presented by competitive fuels, and girding its loins, so to speak, to successfully master the same and press on to new and greater achievements.

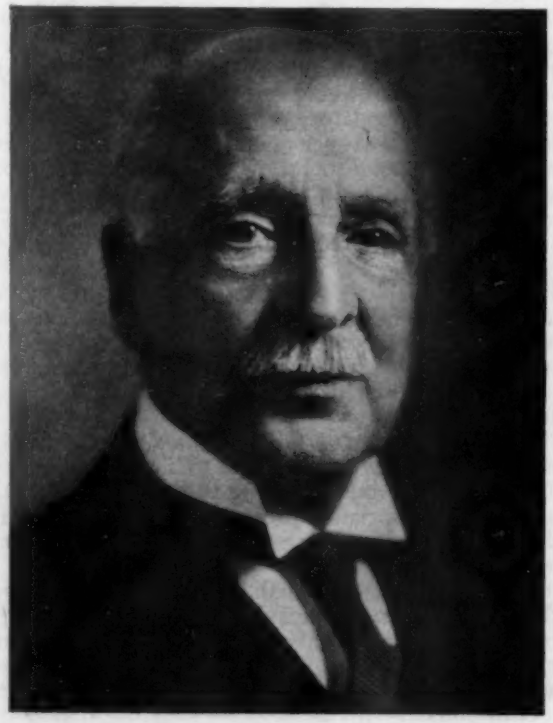
Obviously, in discussing such problems through the various papers, reports and addresses, account was taken of the existing status of business in general; but, more important, the complete ramification of these problems through all the phases of gas utility procedure was driven home with the proper emphasis and clarity. A cursory examination of the subjects treated in the program amply bears out this observation.

Naturally, the absence of exhibits had its effect on the attendance as compared with industrially happier years; however, this very fact perhaps accounted for a higher percentage of those in attendance at the general and sectional meetings than obtained in previous years. Somehow it is thought that the ideas and information of value taken home from this convention will possibly rate higher on a comparative basis than was the case in the past. In short, regardless of lack of numbers in attendance, those present showed a fine spirit and desire to make this meeting a success. That this was the case is a goodly tribute to the enthusiasm of gas men in general and it is reasonably safe to venture the prediction that, in the years to come, the industry will look back on its 1932 meeting as the turning point on the road to increasing success which is bound to come.

As noted above, the attendance of some 1400 while considerably below the figure of 5000 for last year, nevertheless included representative gas men from a great number of utility companies and manufacturers.

The election of Mr. Arthur Hewitt, of Toronto, to the office of President of the Association not only guarantees a year of progress and results, but was a fitting recognition of an out-and-out gas man who has devoted the major portion of his business career to the successful advancement of the industry.

To the officers and staff of the Association much credit is due for the planning and carrying out of this successful meeting.



Arthur Hewitt,
President-Elect, American Gas Assn.

General Sessions

Gallagher Cites Industry's Needs and Plans

SPEAKING of the general status of the gas industry, President Gallagher said: "generally speaking, our credit is unimpaired; our operating companies are generally solvent; we have been able to maintain a large degree of employment. While not all of the officers and employees of our companies, and not all of our stockholders realize as much return for their services or for the money they have invested as in other years, at least the essentiality of the service we render to the public has been more fully demonstrated than ever before."

As regards the lack of exhibits he expressed regret but pointed out that this situation was merely prompted by the business situation and that in future years "we shall again have the benefit of the splendid exhibitions."

Mr. Gallagher paid tribute to the stability and farsightedness of the Five Year Program of Association Activities, pointing out that "the plan contains the essential needs of the National organization of the gas industry as it did when originally written in 1926 by the Committee headed by the Hon. George B. Cortelyou."

Relative to adverse legislation he noted that "the gas industry has suffered less from business conditions of the times than almost any other industry; that is because we are essential to the commercial, industrial and domestic life of our country. Perhaps this is one reason why we are in a number of jurisdictions made the target of those who for one reason or another (one might even suggest the possibility of making political capital as one reason) agitate for rate reductions and for burdensome legislation, State and national, based upon the idea that utility rates have not been reduced in proportion to other items in the cost of living or doing business. Such an argument is easily answered; utility rates never were anything like so high proportionately as other expenses of living and doing business.

"Some of our regulatory commissions have with clear vision recognized that such agitation is untimely and unnecessary. The operating utilities have through reduced earnings suffered such serious financial losses that further curtailments of revenue would only impair the public service. The regulatory commissions of which I speak have not hesitated to publicly declare this view and to stand by it.

"Since industrial recovery cannot be rapid, we may expect during the coming winter a great increase in the number of proposed enactments by Congress and by the many State legislatures leveled at the public utility industry.

"The gas industry as a whole has no reason to fear, or at least should have no reason to fear, adverse legislation because of any crimes we have committed. The American Gas Association presents its record of service to the industry; has nothing to be ashamed of, nothing to apologize for.

"It is probable that there will be many suggestions for increases in our taxes, although to anyone familiar with the situation such proposals may seem incredible. Our taxes have mounted steadily. Year by year, the Managing Director of this Association has pointed out to this Convention in his Annual Reports the danger to the future of our industry from this growing burden. We now pay ten cents out of every gross dollar we earn in taxes, national, State and local, and this in the face of the fact that we are highly competitive with every other form of fuel not one of which is relatively so highly taxed. We are made tax gatherers for government authorities who thus escape the odium of levying taxes.

"The time has come for us to speak out boldly upon this issue. I am aware that in some instances our people have been told to keep quiet on this subject; that they will find their taxes still further increased if they advertise to their customers what part of the rate goes for taxes. However, we might as well die fighting, for in view of our competitive situation we will eventually be done for unless a stop is put to the strangling effect of utility taxation."

In view of the present business situation Mr. Gallagher pointed out the need for fitting our own procedure into the changing trend. In addition he said, "we must broaden the scope of our endeavors in such a manner as to be helpful in adjusting the social viewpoint towards all industry."

As to dealer relations he noted that despite the good work done we might experience during the coming months some attempted adverse legislation.

He spoke of the necessary curtailment of the research program, at the same time complementing the work of the Committee on Industrial Gas Research headed by Mr. F. J. Rutledge, the capable efforts being put forth by Chairman H. C. Cooper of the Main Technical and Research Committee of the Natural Gas Department as regards production and distribution problems in the natural gas industry, and the work of the Technical Section. The four year program of research at the Cleveland Laboratory on mixed gases under the direction of Mr. F. C. Weber's committee was also commended.

William E. Tracy, an inspector of the Kansas City Gas Company, Kansas City, Mo., was presented with one of the highest awards within the gift of the American Gas Association for his heroic act in rescuing a woman who had been trapped by fire in a basement. This award established by the late Walter R. Addicks, is known as the American Gas Association Meritorious Service Medal and the presentation to Mr. Tracy was made by President R. W. Gallagher at the first session of the convention.

Each year this award is made by the American Gas Association in recognition of the most meritorious deed in the saving of life in the gas industry.

Mr. Tracy's heroic act took place on June 10, 1932, when he discovered the woman surrounded by flames. She was unconscious and badly burned when Mr. Tracy, after repeated and strenuous efforts in the utmost danger to himself forced his way into the room and brought her to safety.

Usefulness of the Association

"IN a period of unfavorable business conditions," said Managing Director Forward, "more occasions and opportunities seem to arise for usefulness on the part of the Association to the industry. Troubles are likely to multiply and it is the job of the organization to be ready. Whether in the form of demands for rate reductions in the face of already reduced revenues, new burdens imposed or proposed by legislative authority, additional taxation, increasing pressure of competition, all are at bottom the result of the economic situation. Experiences in one part of the country may be extremely valuable to our members in another part. We may be enabled to make helpful suggestions. In National affairs we are properly expected to represent the entire industry.

"It is gratifying that the Association has been able to meet a large increase in requests for service. Not all of our members know that these services are available, though a constantly increasing number know.

"Another favorable result of a depression is in the closer attention paid to the activities of the Association by those most interested in the advancement of the industry. Requests for launching or continuing association activities are more closely scrutinized in the realization that they must be kept in limits commensurate with the industry's ability to support them. It is certain that with the close attention paid to our affairs by those in authority, there is no chance that activities of lesser importance will be prosecuted in periods of smaller revenues and at times when strictest economies are necessary."

With the above thoughts in mind, Major Forward spoke of the reduction in the number of committees and meetings as well as a reduction in the Association's activities and personnel. "The net results," he said, "are, first, that our activities now are plainly those necessary to the life of the industry; and, second, that the work of the organization is being carried on at substantially less cost both as to Association dues and as to expenditures by companies of time and money in attendance at meetings and conferences."

He stressed the value of the basic principle as embodied in the first Five Year Program of Association Activities.

Relative to the subject of salesmanship, Major Forward stated as follows:

"It has been said that the need of the gas industry, which has an enviable record of technical excellence in every line, lies in the development of more comprehensive and efficient salesmanship in every rank. It has been the aim of the Association through its directorate, the Sections and its committees to develop and intensify this spirit so that the resources of the industry may be fully employed in the active and competitive business era just ahead. Courses and studies in salesmanship and sales management applicable to different branches of the industry, together with employee-customer relations activities, have been among our first concerns. As all our reports plainly show, we have at the same time consistently pursued our program of research in many essential directions."

Furthering Industrial Sales

IN HIS paper, "Improving the Use of Gas in Industry," Mr. N. T. Sellman stressed the active efforts of competitive fuels to close the gap and catch up with gas. He mentioned the need for continued research on the part of the gas industry and the acquisition of knowledge of plants and processes where heat is used. At the same time he listed the many thermal improvements gas has furnished to industry in general during the recent past.

Some of the highlights of this paper follow.

"It should be remembered that the position of gas in industry is not impregnable. Every service rendered by gas can be rendered by some other fuel or source of energy. Except for the fact that gas is delivered automatically from a central outside source, its form value can be duplicated by other fuels. Its ability to be automatically burned and controlled can be duplicated. Frequently its cost is greater than the cost of competing fuels.

"We know that every five year period sees gas utilization on a different plane from that which it was on during the previous five years. That it has progressively moved upward during each five year period in the past has been no accident. It has been due to the success of the efforts made to produce and distribute gas more efficiently and to an increase in the use value of gas resulting from the improvement of heating processes, the development of new equipment and appliances, and in discovering and applying ways to improve the technique of combustion and industrial heating.

"The last five year period will serve to illustrate. During that time there have been two violent changes in factory and fuel conditions. First, mass production in all its ramifications reached its peak and has pointed to what we can expect in the way of production methods in the future. Industrial gas had to meet the growth in mass production practice in everything from tin tags to automobiles. And by completely revamping many utilization practices, gas successfully met the situation. Secondly, not only did production later fall off, but the demand of manufacturers for cheaper unit heating costs became pressing. Concurrently, due to the lowered price level of most fuels, and to the improvements made in their utilization, the industrial gas men have been forced to attain the lower overall unit heating costs demanded by manufacturers, and in addition have had to more than meet the lower unit costs offered by many of our competitors.

"Our competitors have become aroused. Oil burners that meet most every requirement have been highly developed. They operate automatically; in many cases fully unattended. More is known about them; hence, servicing and maintenance have been reduced. Intelligent engineering assures better installation. Elaborate controls have been worked out. The coal industry has become utilization conscious and more progress has been made in this direction during the last five years than during any previous period. Butane has made its appearance in factories and offers the same utilization form value that gas does. Electricity is being energetically pushed; its flexibility, ease of control and lack of combustion atmospheres are the chief causes for the progress it has made.

"On this checkerboard, of which the present day industrial heating situation consists, gas has held its own and made some progress. It has done so because the regular sales and engineering have been supplemented by pioneer research and development work. We have seen new processes introduced and new appliances and equipment replace older, slower and higher unit cost methods. We have seen batch type heating gradually replaced by continuous heating in one industry after the other, from bread baking to carburizing and from enameling to china ware. We have also seen remark-

able progress made toward controlling temperatures and atmospheres.

"We have seen organized research produce new practical ways of burning gas, one of which has so aroused the chemical and metallurgical worlds that we hear the prediction made that for certain high temperature operations, it will not only be the means of replacing oil, but will entirely supplant the well known premixing methods of burning gas. In fact, that is happening in many shops now.

"We have also seen research cool and dehumidify whole houses with gas in the summer, instead of merely heating and humidifying them in the winter, and it is being done cheaper than when using any other source of energy. We have seen research in hotel and restaurant cooking point the way to the first breakaway from the conventional atmospheric burners and substitute more positive and efficient power burners. We can see many more examples of the way in which industrial heating competition has been met during the past five years and how it is being met at present. But furthermore, one can also observe that the research and development movement has been grasped by industrial gas men and equipment manufacturers as a safe and sure means of holding and extending their business.

"It is a fact that our competitors for industrial business are better organized and are more determined than ever. The anthracite coal industry, for instance, is tired of having its back to the wall and is beginning to fight, and its chief tool is research designed to improve the technique of application of coal. On the other hand, the gas business is organized and is steadily making progress in its factory heating methods. Its success or failure in the industrial heating field in the future is going to depend largely upon the ability and skill with which its researches are planned and executed, the number of them and the extent to which they are carried.

"The cost of conducting worthwhile research is less now than it probably will be for many years to come. Research and development conducted now will not only prove insurance to the industry but will turn into worthwhile investment. Any move to stultify or retard the movement is bound to have a serious effect on our business."

Meeting Our Sales Problems

HERE Mr. B. J. Denman emphasized that one of our outstanding sales problems "is that of maintaining and further developing the domestic load." In this connection he stated that "the industry is seriously threatened with the loss of this business by the development and increasing use of electric and oil burning equipment," and that we would have to adopt new and different methods for combatting this competition.

Mr. Denman went on to tell of the tremendous impetus given to the electric appliance business by way of the electric refrigerator and its carefully planned selling methods. He brought out that manufacturers of this appliance were forced by certain conditions to consider adapting their plants to the task of turning out other electric appliances. In other words, he showed that the manufacturers and not the electric utilities were instrumental in giving impetus to the sale of electric ranges.

"The fact," said Mr. Denman, "that already over 1,000,000 electric ranges are in use in comparison with about 10,500,000 gas ranges should make us sit up and take notice. The saturation in some Pacific Coast cities has reached thirty per cent and in Winnipeg it is fifty-eight per cent. The very existence of the industry is threatened unless we adopt the same aggressive sales methods that our competitors are using."

In order to take steps to forestall the competition he said that "in the first place, we must sell ourselves on the merit of our service and our appliances. Several times I have said that we can not expect to have good public relations, without first having good employee relations. By the same token, we can not expect to sell the public on the advantages of our service without first selling it to the people in the industry. The influence that springs from large employee use of modern appliances is tremendous. Too long, not only have we permitted our customers to use, but we have used outmoded ranges, inconvenient, inadequate, and inefficient water heaters and other appliances. Probably 85% of all gas ranges are obsolete, without even heat control, to say nothing about time control, lighters, insulation, etc. Little wonder that we are open to attack."

He pointed out one method of increasing the domestic load and improving the load factor by way of pushing the sale of water heaters, advising that there is now available an efficient low price water heater which can be sold in sufficient volume to produce the desired load, assuming that the proper rate is available, so that the monthly operating cost will be moderately low.

Tracing the loss of the lighting load and our immediate rapid expansion thereafter, Mr. Denman voiced optimism but stated that "one of the most important things is longer credit. As an example, in one of our natural gas distributing properties having approximately 35,000 meters, the sales of gas furnaces and conversion burners had dropped alarmingly, only 366 having been sold from the first of the year to September 1. In an endeavor to stimulate sales, longer credit was arranged, four years if desired, with a very low monthly payment. Dealers were encouraged to participate and many re-

Directors and Officers Elected for the Association Year 1932-33

President—Arthur Hewitt, Vice-President and General Manager, Consumers Gas Co., Toronto, Ont.; Vice-President, N. C. McGowen, President, United Gas Public Service Co., Houston, Texas; Vice-President—Howard Bruce, Chairman of Board, Bartlett-Hayward Co., Baltimore, Md.; Treasurer—William J. Welsh, Vice-President and General Manager, New York and Richmond Gas Co., Staten Island, N. Y.

Directors for 2-Year Term—H. O. Caster, Cities Service Co., New York, N. Y.; B. J. Denman, Vice-President and General Manager, The United Light & Power Co., Chicago, Ill.; Henry L. Doherty, President, H. L. Doherty & Co., New York, N. Y.; O. H. Fogg, Vice-President, Consolidated Gas Co. of New York, New York, N. Y.; John A. Fry, Vice-President and Secretary, Detroit-Michigan Stove Co., Detroit, Mich.; Samuel Insull, Jr., Vice-President, The Peoples Gas Light & Coke Co., Chicago, Ill.; F. A. Lemke, General Manager, Humphrey Co., Kalamazoo, Mich.; Clifford E. Paige, Vice-President, The Brooklyn Union Gas Co., Brooklyn, N. Y.; T. R. Weymouth, Vice-President, Columbia Gas & Elec. Corp., New York, N. Y.

Section Chairman Elected for the Association Year 1932-33

Accounting Section—Chairman—J. M. Roberts, The Peoples Gas Light & Coke Co., Chicago, Ill.; Vice-Chairman, E. B. Nutt, Standard Oil Co. of New Jersey, Pittsburgh, Pa.

Commercial Section — Chairman — Walter C. Beckjord, Boston Consolidated Gas Co., Boston, Mass.; Vice-Chairman, N. T. Sellman, Consolidated Gas Co. of New York, New York, N. Y.

Industrial Gas Section—Chairman—E. L. Wilder, Utility Management Corp., New York, N. Y.; Vice-Chairman, F. B. Jones, Equitable Gas Co., Pittsburgh, Pa.

Manufacturers' Section — Chairman — D. B. Stokes, U. S. Pipe & Foundry Co., Burlington, N. J.; Vice-Chairman, Appliance Div., John A. Fry, Detroit-Michigan Stove Co., Detroit, Mich.; Vice-Chairman, Apparatus Division, Merrill N. Davis, S. R. Dresser Manufacturing Co., Bradford, Pa.

Publicity and Advertising Section—Chairman—Jay Barnes, New Orleans Public Service, Inc., New Orleans, La.; Vice-Chairman, Henry Obermeyer, Consolidated Gas Co. of N. Y., New York, N. Y.

Technical Section—Chairman—J. A. Perry, United Gas Improvement Co., Philadelphia, Pa.; Vice-Chairman, O. S. Hagerman, American Light & Traction Co., Chicago, Ill.

Natural Gas Department—Chairman—Geo. W. Ratcliffe, President, Manufacturers Light & Heat Co., Pittsburgh, Pa.; Vice-Chairman, Frank L. Chase, Vice-President, Lone Star Gas Co., Dallas, Texas.

sponded. The plan has been in effect only ten days but during that time 457 sales have been made. It certainly looks promising, and the plan may have wider application."

In conclusion he said that "to meet our sales problems, we should at least—

"First—Adopt an inducement type of rate. This is imperative.

"Second—Coordinate our efforts—manufacturer—gas company—dealer—not only through national and regional advertising but by national promotional plans. We have the best story, let's tell it.

"Third—Sell our own organizations—make them see that their future is entirely dependent on that of the industry.

"Fourth—Replace obsolete equipment—it offers the greatest opportunity of attack by competitors.

"Fifth—Do a real job of selling water heating—it can be done. It is next in importance to the range business, and it has important advantages in character of load.

"Sixth—Make such necessary changes in time of credit as will give the best overall results. The greatly reduced sales cost may justify longer terms than may appear desirable on first consideration."

Dealer Relations

AFTER tracing the needs for establishing confidence between the utility and the dealer insofar as dealer relations are concerned Mr. Clifford E. Paige went on to say that, "at the time of our last Convention, 170 companies, serving approximately 5,000,000 meters, had indicated their acceptance of the Association's principles. Since then, 30 additional member companies, serving 2,000,000 meters, have adopted these principles, so that now 200 gas companies, serving 7,000,000 meters, are in one way or another conducting sales activities in cooperation with allied trades.

"In some instances, where results of allied trade cooperation are not viewed with great enthusiasm, doubts of sincerity on one side or the other may have arisen; or if such is not the case, more often it would be due to some misunderstanding, which brings us to this point:

"There is no more delicate relationship than such a one as this. It is practically impossible to delegate authority or responsibility. The individual in any Company who has charge of these relations must have the maximum of freedom and latitude in his authority. This is especially necessary because sometimes dealers enter this arrangement in a half-hearted way, to say the least. For the success of the movement, both parties must see the direction in which their common interests lie and must agree upon a plan of mutual benefit and follow it through in every detail as a daily activity."

As regards legislation affecting dealer relations he stated as follows:

"During the past year and a half, bills looking toward legislation of utilities out of the appliance sales field were introduced in 14 state legislatures. In 12 of these states, the bills were defeated, and in the states of Kansas and Oklahoma they were passed. Indications are not lacking that bills will be presented in other state legislatures during the next sessions.

"Particularly under recent business conditions, it was not unnatural that some dealers should feel that the retirement of the utility from the appliance field would give them a corresponding increase in business at a time when most urgently needed. But apparently this has not been the case in the states of Kansas and Oklahoma. While complete statistics are not available, there have been no reports from these states that would indicate that the business formerly done by the utilities has been transferred in any large quantity to the local dealers. While some dealers in these states are reported to favor the repeal of these bills and many dealers are taking full advantage of the sales cooperation offered by the utilities, it is not yet evident that the majority of dealers have reached the point of favoring the repeal of these laws. It seems certain, however, that if the matter is carefully reconsidered by all parties in the light of their own interests, such legislative mistakes cannot help being corrected in the future."

Mr. Paige expressed hope that the pending national advertising campaign of gas range manufacturers would tend to improve trade relations with dealers.

Laboratory Makes Progress

THAT the A. G. A. Laboratory in Cleveland is doing an outstanding service in many lines of gas investigation and appliance testing is amply shown in the paper of Mr. A. F. Bridge, "Promoting Progress Through Testing and Research."

"Probably its outstanding accomplishment," said Mr. Bridge, "during the seven and one-half years of its existence has been the testing and certification of over 21,000 models of domestic gas appliances, thus making available for the public's use equipment capable of insuring safe and satisfactory service, and in this manner contributing in no small degree to the continued advancement of our industry in the face of ever increasing competition."

Relative to the value of the recently established Pacific Coast Branch of the Laboratory he cited the testing and approval of over 1000 models of gas appliances. He also stated that manufacturers on the Pacific Coast had been saved freight transportation charges in excess of $11,000, to say nothing of savings in traveling and other expenses. The paper additionally disclosed that twenty-eight Pacific Coast manufacturers have felt the beneficial influence of the Coast Branch by way of joining the Association.

In the line of research Mr. Bridge noted that "during the past year 46 separate investigations have been completed, leading to the development of, and revisions to, requirements for gas appliances, resulting in the preparation of 57 reports which have been of great assistance to our approval requirements committees."

Still on the subject of research he added that during the five and one-half years investigation on the subject of Mixed Gas, which was recently completed, "25 progress reports, containing approximately 2,000 typewritten pages of discussion and data, were issued based upon the results of over 175,000 separate tests and examinations, and involving the preparation and study of more than 250 different gas mixtures."

"The original program for the study of bell and spigot joints," Mr. Bridge said, "was completed during the past year. An extensive investigation of cast iron pipe joints carried out for the Cast Iron Pipe Research Association has also been completed and final reports prepared and submitted for final approval. Last year marked the beginning of a study of welded joints having for its aim the development of a non-destructive test method for field use."

Along the line of industrial research progress he discussed the following three problems: "A Study of the Characteristics of Burning Gas with Preheated Air," "The Elimination of Noise in Industrial Gas Burners," and "Research in Fundamentals of Combustion Space Requirements in High Temperature Gas Furnaces." As regards the first he stated:

"The study of this subject not only disclosed the possibility of saving gas but has also established many facts concerning the practical application of recuperation, general limitations on recuperation materials, practical limits of preheat temperatures, as well as practical but accurate means of readily computing the savings from burning gas at any degree of preheat, furnace temperature, and furnace atmosphere."

Concerning the second problem he noted that "practical means have been developed for reducing the noisiness of industrial burners as much as 30 per cent through proper precautions in the design of the manifold and mixing devices preceding the burner body."

The third problem called for the following: "Data on the effects of the size, shape, number and locations of flues, with a combustion space of a given size and shape discloses that, while the shape, number and location of flues had little or no effect, the size of the flue was found to govern the absolute furnace pressure. The shape and size of the combustion space unquestionably have considerable effect and it is with this phase of the subject that the Laboratory is now concerned."

Next Year's Convention

Week of Sept. 25th.

Chicago, Illinois

Natural Gas Department

ONE convention session under the chairmanship of T. J. Strickler was held by the Natural Gas Department, principally for the hearing of a group of papers on economic and management problems of this branch of the industry. There was also presented a group of short summaries by subcommittee chairmen dealing with the principal Technical and Research Committee work which has been done under the general direction of H. C. Cooper, chairman. These subcommittee reports dealt with pipe line flow (H. D. Hancock, subcommittee chairman), Well deliveries (R. W. Rawlins, subcommittee chairman), and orifice meter coefficients (T. H. Kerr, subcommittee chairman). Later it is contemplated that the full reports of these and the other subcommittees will be prepared in printed form for the membership of the Natural Gas Department.

The balance of the session after selection of the new officers listed elsewhere in this issue of the Journal was devoted to the hearing of papers, high lights of which are summarized below.

Geo. W. Ratcliffe,
Chairman-Elect, Natural Gas Dept.

The Relation of Investment to Revenue — Its Effect on Public Relations

"IT was in the good times before the depression," said Mr. R. W. Hendee, "that some natural gas companies started passing through what has now become a not-to-be-forgotten era. They saw carefully calculated plans to go awry in the face of unwarranted competition merely because, as it was said, 'Any one can raise any amount of money for a natural gas project.' Parallel lines, parallel and competing distribution systems were financed and constructed in absolute disregard of the availability of necessary earnings. And what will be the

ultimate result to the customer too ready to accept a temporary unjustified low rate? Earnings of both companies will be lowered and eventually the answer will be—higher rates.

"As public utility men our lives are devoted to serving the public. The public's best must be our own. Customers' service and investors' money must be protected to the best of our ability. Certain investments in gas-producing property, in transmission lines in operating equipment may appear desirable on paper. But in actuality, will they gain us more business? Will they even promote more business by improving service? Will they pay for themselves? We know that these are the vital questions we must ask ourselves again and again and answer with a fact-supported 'yes' before we go ahead."

"The tendency to spend money without due regard for return was particularly noticeable during pre-depression days in construction financing by some utility holding companies. Huge transmission lines were laid, and elaborate distribution systems were built or bought, more for the pretty picture they made on a map than for their earning possibilities. Physical perfection has a strong appeal, but 'handsome is as handsome does'; and in the present days of reckoning it is found too often that the great transmission facilities will not be needed for years to come, and that the fine distribution set-ups were made in communities where the business never can be profitable."

"Engineers responsible for construction have gained a new respect for accountancy and business management and today find it advisable to study both, realizing that there is a great deal more to this natural gas business than the size of line, capacity of compressors and open flow of wells. It has been a real problem to get the old and rapidly-disappearing type of field man to understand the value of 'paper work'—but the depression is solving it."

Governing Factors of Natural Gas Projects

SOME points brought out by Mr. A. W. Ambrose are as follows:

"What are the prerequisites of a good project in the natural gas business? I believe they may be summarized in a general way, as

(1) Adequate supply with proper reserves.
(2) Well-balanced markets within economic reach of this supply and
(3) Good management.

"A reserve should be sufficient to provide an amount of gas that will amortize the cost of a pipe line at a fair rate of return over such period of time as it appears a market will be available."

"It is important for operators to employ a competent staff of geologists to seek new reserves which may be available if required. Geology plays a most active and necessary part in such exploratory work and with the improvement in scientific instruments the work of the skilled geologist has gradually become more exact. However, the final proof of an underground supply is determined only by drilling. As a result, gas companies with experience carry under lease much more acreage than is actually necessary at the moment to supply their market demands."

"The method of developing the available supply for a sizeable project involves an experienced force, not only to find gas, but also to drill, produce, and transport it to market. No effort will be made to cover these topics in this paper. Suffice it to say, that to be handled properly, skill, engineering talent, and operating experience are necessary.

"Formulae, based on theory and tempered by experience, assist the engineer in designing economically a line to handle a given load. Compressor station operation becomes almost a routine duty with men familiar with such work.

"But the handling of a large pipe line is no routine matter. The operation of a large pipe line system with its numerous sources of supply and even more numerous marketing outlets is one of varying conditions. Peak days always present problems and the gas dispatcher, or pressure man, in the central office must be constantly on the alert to obviate a shortage of gas in the cities and towns on the system. Operation of the system by the dispatcher is another feature which alone would furnish subject matter for an article of much interest."

"The size of any project is dependent on the markets, both present and potential. Consequently, most serious thought and study should be given to the essential characteristics of a market which must serve as the basis for earnings. The location of the markets must be within economic reach of the supply in order that a properly designed pipeline can be constructed and operated at a load factor sufficient to pay operating expenses and earn a return on as well as amortize the line over the period of years. This period is that in which it is estimated the supply and markets will be available at a fair price."

"In rate structures, the various classes of consumers may be considered as domestic, preferred industrial and straight industrial—a part of which may be in the nature of a dump load. The domestic load is made up of cooking, water heating, and generally, househeating. The nature of this load is such that it presents a poor load factor and for that reason will earn the highest rate in a well balanced and logical rate structure. The rate for domestic gas is not essentially competitive, since in cleanliness, convenience, and general facility of use, gas is so far superior to other fuels that consumers are willing to pay more for it.

"Preferred industrials may be defined as those small industrials, such as laundries and bakeries which, because of the quickness of heat, cleanliness and convenience of gas, are willing to pay more per heat unit in gas than in other fuels. In a proper rate structure these will earn a lower rate than straight domestic because of the better load factor and greater consumption.

"The large industrials are those which consume large quantities of gas, usually with a high load factor. Because of this high load factor, large consumption, and their ability to switch to other fuels in an emergency, they are in a position to earn the low rate on the schedule.

"Competitive fuels often change in price, freight schedules of these fuels may vary and as a result readjustment of the rate structure may be necessary. Rate making bodies must be worked with, and if this becomes involved in politics, the problem becomes more accentuated. These are some of the difficulties to be faced by an adequate management."

The Service and Sales of Proper Appliances

"EFFICIENT, convenient, economical modern gas appliances in our customers' homes, properly installed and adjusted, are essential to the continued existence of the gas industry," said Mr. F. M. Banks. "Our customers will not be satisfied for long with less than this standard. If we do not, through our promotional activities, cause gas equipment to be placed in their

homes which satisfy these requirements they will turn to other sources of energy."

"In the promotional selling of appliances for the benefit of the gas industry it is not sufficient just to sell a volume of appliances. An unfortunate error frequently made is to attempt to sell a complete price range of appliances because of the mistaken idea that it is necessary to be in a position to supply the demands of all potential buyers of appliances. If the utility attempts to acquire volume of appliance sales by selling in the low price field to any extent, it acquires much of the volume which the established retailer or merchandiser could most readily sell himself; and ordinarily the utility, if it is to acquire its optimum load, needs to have the selling capacity of all possible retailers of gas appliances. Also, it is well to realize that public acceptance is usually given to the type of equipment sold by the utility, and to a large extent, the prices which the utility quotes for an appliance come to be accepted by the public as the price at which a good appliance of that kind should be obtainable.

"If the utility sells too far down the price scale the public acceptance lowers to that point, and merchandisers find it unprofitable to sell at any other prices. I believe it can be shown conclusively that dealers can and will sell better appliances in the territory of the utility which places its effort on equipment of quality only, than they can or will in a similar territory of a utility which attempts to cover the lower priced field. This may be accounted for in part by the fact that the utility price tends to become the standard of public acceptance; in part, because merchandisers themselves tend to accept the same standard; and also to the not inconsiderable fear that many retailers have that they cannot compete with the utility, and therefore must sell equipment which is at least slightly lower in price. The utility should accept the task of promotional selling of those apppliances which are of unquestioned quality."

"Market analysis on a gas system should indicate poor sections which may require especial attention, either by increasing the normal program or perhaps by introducing selling programs designed particularly for those sections. It is clearly the responsibility of the utility to discover the sections which require special attention, and to encourage the activity of retailers in that area. However, it will usually be found that the retailer and manufacturer cannot afford to spend the money to open that market, and in my experience, they will be the first to say that they must depend upon the utility."

"It is a healthy policy for any utility to supply retailers and manufacturers with information concerning the low saturation areas, first, that they may be able to do their part intelligently, and, second, that they may realize the extent of the potential market which is open to them, and last, but by no means least, that they may fully realize the necessity for promotional selling by the utility. For example, the water heater distributing agencies of one city on the Coast felt that the metropolitan market for automatic water heaters was substantially saturated. Led to believe this because their principal volume of business consisted of replacing worn out automatic water heaters, they considered that the utility was unwarranted in selling that section because its water heater business must also be principally replacing automatics. The local utility met with them and brought out the point that the metropolitan market was not reasonably saturated, as indicated by survey information showing some areas of low saturation. It further brought out the fact that only one-third of its own sales were replacements of automatic water heaters. The water heater agencies readily acknowledged that they could not afford to direct special emphasis on those areas without some assistance, withdrew their objections to utility activity, and took what steps they could to increase their coverage there. In other instances also retailers and even associations have withdrawn their objections to the utility's selling efforts when presented with such data. Manufacturers too can better judge where they should establish additional dealer outlets, or can be induced to increase their efforts, when they have definite information of this nature."

Our Competitors

MR. F. H. BROOKS noted that, "with over thirty-four trillion cubic feet of known gas reserves in this country and with additional fields constantly being explored and their resources being made available by pipe line to every nook and corner, can any intelligent mind question that there should be conferred upon this generation the multitudinous and undeniable benefits of natural gas?

"Competitive fuels necessarily recognize that the enjoyment of the abundant natural gas reserves of the country must and should be made available to as many as possible of its inhabitants, and appreciate that development toward this objective is inevitable."

"Only within the last ten or fifteen years has real competition appeared in the fuel industry. The drilling of wells to deeper strata, to depths generally unthought of before, revealed vast reservoirs of gas and oil which gave promise of uninterrupted supply for years to come."

"The perfecting of means of natural gas transportation was stimulated by the discovery of these ample reserves, and in 1926 there was completed the first real long distance gas transmission line, introducing a new era in fuel competition, and making evident the possibility of supplying large cities at remote distances from gas fields with an unlimited quantity of a fuel both cheap and ideal. At about the same time large surplus oil production accentuated the development and extension of oil burning furnaces for home and industry and the entrance of another new and strong competitor."

"It would be superfluous to stress to laymen the obvious advantages afforded by the exceptional attributes of this new fuel, and unpardonable to dwell thereon before a group identified with the natural gas industry. It follows as day does night that if the reserves exist, and the means of making available the product of those reserves at distances remote therefrom are afforded, the markets themselves will demand that product, and the use of natural gas will expand and ramify almost without limit until the points of approximate saturation have been attained. Surely as has been observed, no agency and no interest can be heard to challenge the right of the American home and American industry to receive the maximum benefit of this unparalleled fuel."

Attitude of State Utility Commissions Toward the Utility Companies

SOME significant points of Mr. Karl F. Griffith's paper are as follows:

"The Interstate Commerce Commission and the various public utility commissions were created, presumably, to correct railroad and public utility abuses and discriminatory practices. Somewhere in the provisions of the laws creating these commissions, we find language which in substance authorizes the commissions to fix

and prescribe reasonable rates and charges. Such language has been judicially interpreted to mean that the rates so fixed and promulgated shall be reasonable, not only to the public but, as well, to the public utility. This latter interpretation, sound because otherwise constitutional rights would be violated, has in many states been utterly ignored in the last two years, and probably the primary cause is the economic depression which everywhere has made for the cry, 'Everything else is coming down, so why not public utility rates?' The public, and in many cases the commissions, have ignored the obvious fact that public utility rates are not predicated upon all-commodity price levels. Held to the limit of a fair return in years of prosperous business, there is no legal or moral reason for compelling a utility to work at starvation wages during a business depression.

"In three states—and I shall not hesitate to name them—they are Kansas, Oklahoma and Pennsylvania—the chief executive has seen fit to virtually dictate to the state utility commission as to the policy to be pursued in connection with the regulation of rates and, to be more specific, the policy to be pursued in connection with the reduction of public utility rates. This presents an unparalleled situation in American public life, and is unquestionably at variance with the idea which the American public has always held, that public utility commissions are and should properly be fair and impartial tribunals to be governed by the evidence produced at the hearings in respect of any public utility to be affected by a commission order. In states other than those mentioned, there has been a determined effort on the part of the chief executive to change the personnel of the commission so that the domination of the chief executive would be complete in rate regulatory matters. All of this has made for a situation in which the public utilities are being denied that fair and impartial hearing to which they are entitled, even before a legislative body.

"The utility commissions were created for regulatory purposes and many of them have fulfilled this function in an admirable way. They have made for a stability in the industry which has given assurance to the public, the public utility investors, and the public utility operators of fair and equitable treatment. But on the other hand certain of the commissions have abandoned the idea of regulation as such, have launched on a campaign of management of the utilities and, in many cases, have embarked upon a program of persecution of the utilities. The public, through the radical press, hears the commission's biased view, and then when the commission's decision, defiant of the law of the land, is upset by the courts, we hear the complaint that the public is powerless and that commission regulation is a failure. And it certainly will be a failure whenever and to the extent that the commissions ignore their statutory and constitutional functions and substitute prejudice for the law and the facts.

"The men who founded the natural gas business had plenty of courage and the men who have developed it to its present stage have exhibited the same characteristic. If we, who are assembled here, are to be responsible for the future conduct of a substantial part of the natural gas business of these United States, it will be incumbent upon us to fairly and fearlessly present our matters before regulatory commissions having jurisdiction, and if those decisions are prejudicial, unwarranted and unjust, it will then be our first duty to contest to the utmost such orders as will inevitably make for a confiscation of property and a destruction of the valuable public service rendered by the industry."

Technical Section

TECHNICAL PROBLEMS of the gas industry received attention of the engineering membership in two sessions. Under the chairmanship of Mr. I. K. Peck, Midland United Company, Chicago, the first of these sessions dealt with problems of distribution and amplified the committee reports which had been presented in a preliminary way at the Distribution Conference earlier in the year. Because of the length of the program there was unfortunately little discussion of either the committee reports or the excellent technical papers made available at this meeting.

Production and chemical problems occupied the time on the second session of the Technical Section. In view of the fact that no production and chemical conference was held during the Spring of the year, these matters were presented in open session of the convention for the first time. The inadequacy of the time allotment for discussion was clearly evident at this meeting. Half of the program available would have more than sufficed to fill the entire afternoon, if any reasonable opportunity for discussion among interested engineers had been afforded.

J. A. Perry,
Chairman-Elect, Technical Section

Pipe Coatings and Corrosion

"FROM a consideration of all the data on the subject which is at this time available, it is apparent that we are justified in making the following statements:

1. That the only practical means of reaching a satisfactory solution of the problem of the protection of underground piping from corrosion is painstaking and necessarily slow research by those who are in a position to give their entire time to the work.

2. That the protective value of a coating depends primarily upon the nature of the coating and to a minor extent upon the soil.

3. That when a coating fails, the pitting rate depends upon the soil.

4. That the electrical conductance and pinhole tests are useful methods for determining the protective value of coatings.

5. That the protective value of a coating is increased by increasing the thickness, within certain limits.

6. That mechanical distortion after application is the principal cause of bituminous coating failures.

7. That organic reinforcing materials are decomposed by bacteria and fungi in the soil and that the extent of this decomposition or rotting depends upon the nature of the soil and upon the extent to which the materials are protected with bitumen or disinfectants.

8. That thin, or what might be termed paint, coatings do not add enough to the life of the pipe to justify their use.

9. That the corrosiveness of a soil cannot as yet be accurately predetermined by the use of any one method.

10. That the corrosiveness of a soil can be fairly accurately predetermined by the use of a combination of methods."

This committee points out that unless some new action is taken the research work on this subject will be interrupted at the end of the present Association year. At present the work is receiving $4,000 per year; adequate support to the logical point of termination would require, in the judgment of the committee, about $6600 per year for four years, that is through 1936. The committee strongly recommends reconsideration and provision of these funds.—*Subcommittee Chairman J. K. Crowell.*

Conversion to Natural Gas

"*CHANGING from Manufactured to Natural Gas.*—Innovations have been made in the methods used for the actual physical changeover. The familiar method of sectionalizing a city and adjusting all burners after natural gas is turned into the mains, a section at a time, has been superseded in some instances by a 'two-step method' where an intermediate adjustment is made following the introduction of a predetermined mixture of manufactured and natural gases and a final adjustment made after the introduction of 100% natural gas only in the case of industrial and commercial appliances and upon call from domestic customers.

"The 'pressure method,' developed and used in the Chicago changeover, to the best knowledge of this subcommittee, has been used only where the change was from a manufactured to a mixed gas with a relatively small increase in heating value. In this method, distribution pressures with the original manufactured gas are raised to a predetermined point and all appliances then adjusted to this new condition. After the introduction of natural gas, distribution pressures are lowered to the desired point and no subsequent adjustments made, except in special instances as required.

"This subcommittee does not feel disposed to recommend any one of the three conversion methods now in vogue above the other. Each one seems to possess particular features. The success and satisfaction of any changeover are reflected in the result, which depends largely upon the efforts put forth in study and preparation, selection and training of personnel, information of public and service standards. It is believed that the three methods described are sufficiently diversified to furnish means of meeting any situation that might be encountered."

"*Saturation and Oil Fogging.*—Very little change has been made in methods employed for saturating natural gas with water and oil fog since our last report. Opinion is still divided as to the advantages and disadvantages of water saturation, although most every one is agreed in the advantages to be attained through oil fogging. The subcommittee is no better prepared this year than it was last year to recommend the one best method of treating natural gas to prevent trouble from dust and excessive leakage, although it has the record of experiences of a number of cities where both water saturation and oil fogging have been employed with eminent satisfaction since the outset of natural gas use.

"The use of mixed manufactured and natural gases during the past year has introduced an unknown feature into the saturation problem. Theoretically, this mixed gas should have about the same characteristics as so-called dehydrated manufactured gas and should require the same treatment. The record of experiences does not justify conclusions in this regard."—*Subcommittee Chairman George Wehrle.*

For submitting the best technical paper before a meeting of the American Gas Association last year, R. B. Harper, Vice-President of the Peoples Gas Light and Coke Company, Chicago, Illinois, at the annual convention was awarded the Beal Medal.

Those who have received the medal in past years are: Henry L. Doherty, Arthur Glasgow, I. N. Knapp, B. H. Spangenberg, Henry L. Rice, W. H. Gartley, W. H. Fulweiler, C. J. Ramsburg, H. W. Alrich, L. E. Worthing, C. O. Bond, O. B. Evans, F. W. Steere, E. J. Brady, F. W. Sperr, Jr., Arthur W. Warner, Ralph L. Brown, L. J. Willien, Louis Stein and Philip Thornton Dashiell.

Mr. Harper was honored this year for his paper on "Gas Flames in Conversions to New Gases," which was submitted before the Technical Section of the Association last year in Atlantic City. Mr. Harper, for many years, has been active in affairs of the Gas Association. In 1921 he served as chairman of the Technical Section and, prior to that time, he served as chairman of the Chemical Committee and has devoted much of his time to duties as chairman of the Approval Requirements Committee of the A. G. A. Testing Laboratory, Cleveland, Ohio.

Committee on Meters

THIS committee during the year dealt with a variety of problems, including Bakelite valve covers, semi-chrome leather for diaphragms, leather vs. rubber meter washers, packing of stuffing boxes, the effect on accuracy of locking meters on customers' premises, and factors in accuracy of meter proving. This last subject lead to several recommendations.

"Although, the subcommittee is not in position to make recommendations of absolute standard practices, it is prepared to recommend certain fundamentals which the various gas companies may use to an advantage in

establishing their own standard practices. These may be stated as follows:

"In proving displacement type meters with the type of meter provers usually used in meter shops (displacement or bell type) the following items should be considered and thoroughly understood:

"The meter prover of the displacement or bell type is so designed and constructed as to contain a given volume sealed in the prover bell, as shown on prover scale, and only under the existing conditions of pressure, temperature and saturation at time of adjusting the pointer on the scale.

"The displacement type of gas meter is also constructed so as to measure the volume passing through it under existing conditions of pressure, temperature and saturation at point of measurement."

"Volumetric change of the testing medium may occur as a result of the following:

1. Change of pressure in the prover during the test.
2. Loss of pressure between the prover and the meter.
3. Difference between the temperature of the test medium entering the prover and the temperature of the prover.
4. Difference between the temperature of the meter and the temperature of the prover.
5. Change of volume of the test medium sealed in the prover due to:
   a. Expansion of test medium volume caused by absorption of vapors from sealing fluid in the prover.
   b. Contraction of test medium volume due to lowering of temperature of medium in the prover caused by evaporation of the liquid from the bell of the prover and from the sealing fluid.
   c. Contraction of test medium volume caused by condensation from the medium.
   d. Change in volume caused by change in temperature due to the latent heat of condensation.
6. Change of volume of the test medium as it passes through the meter is due to:
   a. Expansion of test medium volume caused by absorption of vapor from the condensates in the meter.
   b. Contraction of test medium volume due to lowering of temperature of the medium in the meter caused by evaporation of condensates.
   c. Contraction of test medium volume caused by condensation deposited from the medium.
   d. Change in volume caused by change in temperature due to the latent heat of condensation.
7. Change in meter proof from that existing while in service due to change of friction on meter valve surfaces and flexibility of diaphragms, due to evaporation of condensates or deposition of condensates from the test medium."—*Subcommittee Chairman J. E. Overbeck.*

Soil Survey with Shepard Rods

"IN 1914, The Harrisburg Gas Company, Harrisburg, Pa., laid a 12" steel main between the coke ovens of the Bethlehem Steel Company and the gas plant. This main was used until 1926 as a delivery main for the coke oven gas. In 1926 a new 16" cast-iron main was laid to the new plant and the southern portion of the 12" steel main was taken out of service.

"In 1931 it was decided to overhaul this portion of the 12" main and to use it in conjunction with a new 8" steel main, to be laid in order to take care of the increased load on the high-pressure distribution system.

"The conditions under which the Shepard Rod survey was made were probably near ideal for the detection of corrosion by this method."

"Prior to the survey explained in this report, air tests had been made to detect leaks. It was known that stray current electrolysis was not present and a few inspections of the main had shown the pipe to be in good condition. The soil was believed to be mildly corrosive. If the main had been placed in service on this basis it will be seen from the condition of the pipe shown in the photographs just how serious the leaks would have been in a few years. By the use of the soil resistance rods a total of approximately 1,300′ of main in very bad condition was removed and replaced. It would have been (as actually was the case) a very easy matter to have overlooked the short individual sections of bad pipe, for there was no particular reason, without the results of the survey, to make a test hole at the locations where the corrosions had occurred."

"In conclusion, it is believed that the use of soil resistivity rods are of benefit in soil corrosion studies, provided care is taken in obtaining the true values of the soil resistances and that proper consideration is given to the physical conditions surrounding the pipe. If conditions have been constant for a number of years, a soil resistance survey should be a reliable index to corrosion conditions. If conditions have been varied frequently, such as by main extensions, tie-ins with other mains, highway grading, churning of the soil by construction work, etc., then frequent surveys giving an analyzed history of conditions would not only be necessary but valuable in the maintenance of underground piping systems.

"While actual soil resistance values may be a good index to corrosion in some localities, in general the 'dips' in the resistance curve appear to be the first locations that should be examined either for replacements of old mains or for determining protection to new mains."—*A. V. Smith.*

Purging Apparatus

"THE safe practice of purging gas mains, holders and works apparatus with inert gas belongs in that category of progressive movements which, while of outstanding importance, cannot be proven a necessity by an actuarial computation. Even though the possible consequence of allowing flammable gas and air to mix in a large container has been sufficiently demonstrated, no claim will be made here that the past history of our industry deserves anything less than commendation as a remarkably good record, particularly when compared with some other enterprises. This important fact is proven by our freedom from technical regulations imposed upon other industries. We have done a very good job at keeping our own house in order."

"Every problem in purging involves one of two situations:

"Case I: A main, holder, or other equipment, at the time containing air, is to be placed into flammable gas service.

"Case II: A main, holder, or other equipment, at the time containing flammable gas, is to be withdrawn from service.

"The existence of any explosive mixture at any stage of any operation embraced within either Case I or Case II, may be prevented by first displaying the contents with inert gas with flammable gas or air, as the objective may require.

"Since the importance of safe purging with inert gas has become more fully recognized, with a corre-

sponding increase in the practice, the expected demand has appeared for suitable facilities for the production of non-flammable gas. Inert gas of suitable quality may be obtained from certain equipment usually existent in a gas works, or from special apparatus, there being no one method applicable to all situations."

"When conveniently available, the water gas generator possesses outstanding advantages, particularly for large purging operations. No additional investment is required and the production of the non-flammable gas lies within the skill of any experienced machine operator. Within recent years the Consolidated Gas Company of New York met the requirements for two large purging operations by temporarily installing a small water gas generator, removed from an abandoned plant. It is improbable that this procedure will be repeated, for the reason that there has since been developed a portable inert gas generator which consists of a submerged burner consuming commercial gas, thus producing a non-flammable flue gas. Some seven of the larger operating companies have now adopted such generators as standard equipment. They are now being built on a commercial basis, the largest machine now in service having a capacity of 50,000 cu.ft. of inert gas per hour. Among the advantages of this type of machine are its portability in large capacity sizes, ease and permanence of adjustment for complete combustion, and absence of disturbing noise during operation."

"With the proper carbureter adjustment, the exhaust gas from automotive equipment is of suitable quality for purging purposes. Such equipment possesses the advantage of being essentially portable, of being readily available everywhere, and of being flexible, as the requirements of any operation may be met by assembling a sufficient number of units. Standard gasoline driven air compressors are better suited to the purpose than automobiles for the reason that they may be operated under a load, thus consuming more fuel and therefore yielding a larger volume of exhaust gas in a given time."

"The yield of inert gas from any type of automotive engine may be estimated at 1,000 cu.ft. per gallon of gasoline consumed, though, with the equipment in good condition and properly adjusted, the yield may be as high as 1,400 cu. ft."

"The inert gas used in purging operations should not contain more than 2% of oxygen, nor show a test by combustible gas indicator of more than 50% of the lower explosive limit, when tested in accordance with the directions applying to the particular instrument used."—*Herbert W. Alrich.*

Pipe Joints

REPAIR of Old Joints.—It is considered that bell joint clamps offer the most practical and advisable means now available for the permanent repair of leaking cast-iron bell and spigot joints. The recommendations here given have been found to apply to 6, 16 and 36 in. sizes and it is felt that this range is adequate to allow the application of the results to intermediate sizes. For the most successful performance of leak clamps, their design should provide for the following:

1. Ample cross-sectional area of the gasket. The width should be substantially greater than the width of the joint space.

2. The segments of both the clamp rings should be of such design as to afford ample rigidity. Means should be provided to insure a secure and substantial method of locking together the individual segments so that substantially a solid ring may be formed when finally assembled. It has been found that such construction is necessary to prevent excessive distortion of the clamp ring which would result in a release of compression on the gasket. This matter is of particular importance in large size clamps.

3. It is important that careful consideration be given to the bell dimensions of the pipe to which the clamp is to be applied. Clamps are available to fit the majority of the bells usually encountered in service.

4. Some of the newer designs of clamps are so constructed that they may be adjusted to allow for variations in the outside diameter of the pipe to which they are to be applied. It is considered desirable that the clamp be fitted as closely as possible to the pipe so as to prevent undue motion.

In preparing a joint to receive a clamp, care should be taken that the following conditions are observed:

1. The surfaces of the joint and the adjacent metal should be thoroughly cleaned.

2. When lead joints are used, they may be recaulked to face up the joint surface as nearly as possible flush with the bell. If the lead is recessed more than ⅛ in. after re-caulking, it is advisable to cut it out to a depth of at least ½ in. Cast lead or lead wool properly caulked may then be used to re-face the joint flush with the bell face. If so desired, the joint may be re-faced with cement after cutting out not more than ½ in. of the top lead, using the method given below for cement joints.

3. For cement joints the top cement may be cut out to a depth of not more than ½ in. and the joint re-faced with neat cement. Care must be taken to finish off the cement smoothly and flush with the bell face. The clamp may be applied immediately to the green cement.

4. A thin coat of lubricant should be applied to the area to be covered by the gasket. This may also be applied to the joint of the gasket unless a special material is provided for the purpose. Soapsuds or liquid soap have been found satisfactory for this use. Where a joint has been re-faced with cement, no lubricant need be applied to the joint."

New Joints.—The following recommendations for new construction are made based on the results of tests on 4 an 16 in. joints.

1. Cement joints are not recommended for pressures much above 10 inches of water and should be restricted to the smaller sizes. No. 1 A.G.A. standard bells should be used.

Cement is not considered suitable for joints as large as 16 inches. The joint material in this size is so weak in respect to the pipe as to be unable to withstand the action of external forces tending to deform it.

2. Cast-lead joints are not considered satisfactory for new construction. Lead offers but little resistance toward deformation and is unable to return to its original position when once deformed. Lead joints are thus likely to leak readily.

3. Lead wool joints are expensive to prepare and it is doubtful whether they can be depended on to stand up under service conditions. The objection to the use of cast lead applies to a certain extent to lead wool. This may be overcome somewhat by more effective caulking, such as by air tools. The workmanship in the preparation of such joints is of great importance.

4. The use of two concentric rubber rings with inclined faces in contact and held in place by cement, is recommended for joints up to 16 inches in size and pressures above one-half pound. Such joints have been found tight under severe test conditions at 50 lbs. pressure. Their use is recommended for working pressures up to 25 lbs.

5. Mechanical joints such as the Anthony, Dresser, Doublex Simplex and Flexklamp, all of which make use of rubber rings as gaskets, are recommended for use with cast-iron mains for pressures above 25 lbs. These have been tested out and found tight for pressures up to 150 lbs. under conditions even more rigid than those used for bell and spigot joints.

Welded Joints.—The results of the field survey were reported to the advisory group at a meeting held on March 17. Following a thorough discussion, the report was accepted and it was decided to present the following recommendations to the Pipe Joint Committee:

1. That a Laboratory study be made of various designs of welded pipe joints for the purpose of determining the desired physical characteristics of such joints.

2. That a Laboratory study of existing methods for testing welded pipe joints be made.

3. That an attempt be made to develop a method or methods of testing which may be adapted to the needs of field testing of welded pipe joints."

"A considerable amount of experimenting has therefore been carried out with a thought of developing an instrument for the testing of welded joints in the field. It was found that very little data was available which could be applied to the development of such an instrument and it was necessary to design the equipment needed. At the present writing, a model of a weld test meter has been built by a firm of instrument makers from working drawings prepared by the Laboratory and further experiments are now under way to determine the best means of applying it to the testing of welded joints so as to obtain the most accurate indication of the degree of soundness of a weld."

"While it is not possible as yet to make any definite statement on the performance of the weld test meter which has been designed, it is felt that it shows decided signs of promise. After the necessary preliminary details have been worked out, it is considered that it will provide a ready means of field testing of welded joints which it is not now possible to obtain."—*K. R. Knapp.*

New Coal By-products

"1. THIS report describes some of the recent developments and trends in special by-products and certain secondary derivatives of primary by-products obtained from the carbonization of coal.

"2. Sulphur, obtained as a by-product from the liquid purification of gas, has demonstrated its sales possibilities to a gratifying extent, despite the fact that it has been on the market for only two or three years. It is expected that this market will expand.

"3. Ammonium thiocyanate is one of the newest special by-products. Present demand is very restricted and it is impossible to predict future trends until present market and technical development programs have been carried further along.

"4. Pyridine has all but passed out of the picture as a special by-product of coal carbonization, due to the use of other denaturants for alcohol.

"5. Creosote oil, the chief by-product of tar distillation, has recently suffered a set-back in sales, due very largely to decreased construction activities. Future improvements in the market for creosote oil depend very largely on the resumption of construction work of all kinds making use of creosoted timbers, poles, ties, etc.

"6. Pitch, although usually burned in large quantities as a fuel, has recently been exported in increasing quantities to Europe. Pitch has also found increasing utilization as a raw material for the manufacture of hard metallurgical coke of low ash and sulphur content, in by-product coke ovens.

"7. Carbolic oil, used in various disinfectants and anti-septics, has good future possibilities of increased markets. The present production, however, is considerably lower than 10 years ago, due to substitution of other ore-flotation reagents, which was one of the chief uses of carbolic oils at that time.

"8. Phenol and cresylic acid, due very largely to the greatly extended uses for synthetic resins, have shown enormous gains in production and sales over the last ten years. During the same period, prices have decreased considerably, which is very favorable to further markets and uses for synthetic resins and plastics, and therefore to markets for phenol and cresylic acid.

"9. Naphthalene production has shown a tendency to increase in the refined product, but there has been a slump in the domestic crude production, while imports of foreign crude have increased. Future markets for naphthalene are largely dependent on increased utilization in the synthetic chemical industry, such as increased production of certain dye intermediates, and further development of the domestic production of tetralin, which is a solvent.

"10. The coke-oven tar still is an interesting recent development in the processing of coal tar directly at the ovens, utilizing the sensible heat of the oven gases for distillation, followed by fractional condensation.

"11. Coumarone resin, derived from certain light-oil fractions, has recently shown a promising tendency to widen its use in varnish and lacquer manufacture. Further technical developments in the preparation and use of this resin should lead to increased sales in the future."
—*A. R. Powell.*

Ammonium Thiocyanate

"AMMONIUM thiocyanate is found present in ammonia liquor to the extent of about 2.5 grams per liter. Many attempts have been made in the past to produce this material in a more concentrated form, as will be pointed out later. Most of the processes involved were expensive or tedious to operate. Only comparatively recently has it become possible to produce ammonium thiocyanate readily, cheaply and in quantities on a commercial scale. Ammonium thiocyanate is important in that it may be used as a parent substance for all other types of cyanide compounds. Ammonium thiocyanate is readily converted into thiourea which on condensation with formaldehyde is finding increasing application in the plastic field."

"The demand for ammonium thiocyanate in past years has been small; a limited quantity was consumed by the textile industry in the form of tin and aluminum salts as mordants and a small quantity was used in photography. In late years, a fresh outlet has been found for these compounds and several processes have been proposed and worked for their conversion directly or indirectly into cyanides. Ammonium thiocyanate has found and is finding new applications and uses in industry.

"Because of these recent developments, it becomes important to assemble and correlate information on ammonium thiocyanate concerning its chemistry, its method of manufacture, its applications, and its methods of analysis."

"Its commercial production is an actuality and with increasing use for this product the demand will increase accordingly. It seems beyond doubt that the use of this material will be extensive in the near future. The foregoing has assembled the more essential facts relat-

ing to ammonium thiocyanate, considering its chemistry, manufacture, application, and methods for its analysis."
—*Louis Shnedman.*

Charges for Customer Service

"IN order to obtain a general idea of present day practice in customer servicing, a letter was addressed to representative gas companies throughout the country asking the following questions:

1. Do you supply free service to customers in keeping gas burning appliances in satisfactory operating condition?

2. Do you charge the customer for any service in keeping gas burning appliances in good operating condition? If so please describe.

3. Do you recommend to customers that they obtain the services of others, such as plumbers, to obtain the necessary service?

SUMMARY OF APPLIANCE SERVICE POLICIES OF TWELVE COMPANIES—APRIL, 1932

Answers to Questionnaire of April 20, 1932

	1	2	3	4	5	6	
Company	*Is Free Service Supplied to Keep Appliances in Condition?*	*Are Charges Made for Any Service Supplied to Keep Appliances in Condition?*	*Are Customers Ever Asked to Obtain Necessary Appliance Service From Others as Plumbers?*	*Would It Be Desirable to Inaugurate a Charge for Any or All Service Now Supplied Free?*	*Is a Charge for All or a Part of the Present Free Service Planned for the Future?*	*Have Costs of Free Appliance Service Increased Because of Automatic Appliances?*	*Remarks*
A.	Yes	Material at cost.	Only for repairs not on appliances or gas pipe.	No	No	1931 costs double 1930.	Rate includes an amount a little over 1c/M for this work which is considered necessary to maintain sales.
B.	Yes Burner adjusting only.	All appliances bought from company serviced free for one year; all burners adjusted free; flat rate charge for all other work for labor and material.	Only for cases where manufacturers request service calls; repairs not directly in province of gas co. referred to plumbers, steam fitters, etc.	No	No	Yes	Present scheme of charging for all work except burner adjusting inaugurated 3/1/31.
C.	Adjustments and minor repairs requiring no parts and ½ hr. or less of time are free.	Material and time over ½ hr. charged for at flat rate covering time and material.	Takes care of all emergency service but advises that outside agencies make major repairs.	Inaugurated present charges 2/15/32.	Just started charging for part of the service.	Yes	One hour free labor allowed on house heating jobs. After 1/1/32 refrigerators will not receive free service whether sold by company or other dealers.
D.	Yes Everything within reason.	Cleaning except burners. All repairs except those covered by guarantee.	Yes for work on water lines and that which gas company cannot do itself.	No	No	No	Expects increase due to automatic appliances. Have just gone through a change-over period which fosters disposition to do more free work for the time being.
E.	Yes	For parts only.	Do not recommend plumbers for work needed to be done.	Thinks it would be folly to inaugurate charges where rate is sufficient to cover this cost.	No	Yes—25%	
F.	Yes	No	No	No	No	Yes	Recent change-over tends towards leniency of this co.
G.	Yes	Yes—for repair parts; cost of handling.	No	No. Holds that prompt service rendered by gas co. is one of most valuable sales arguments.	No	Yes	Increased costs due almost entirely to refrigerators.
H.	Yes. Burner adjustment on domestic appliances.	Charge made for repair parts on appliances sold by the company and on which guarantee expired.	Yes. All repairs other than listed in (2). Automatic water heaters, central house heating plants referred to dealers. Fuel line leaks referred to plumbers.	No answer	No	No data available.	
I.	Yes	No	Replacement parts are left to dealers or to local agents except on appliances sold by co. which are replaced free for one year.	Feels that some service items should be paid for.	Matter of charging for some service items is now under consideration but no definite policy has yet been reached.	Serious increase chiefly due to increased use of automatic appliances.	Increased costs of service are being considered with possible charges for some service items.
J.	Yes	Charge for material and labor in replacing parts on appliances not sold by co. and on those on which guarantee has expired.	Work involving changing of water lines and connections is controlled by plumbing regulations and must be done by reg. plumbers.	No answer	No answer	45% increase in four years.	Increase unquestionably due to increased use of more complicated automatic appliances.
K.	Yes. Burner adjusting.	Yes—for parts and for cleaning. Cleaning charges based on time and material.	Only in larger buildings involving extensive changes in piping is a plumber recommended.	Present policy is equitable.	No	No	Believes automatic features on appliances do not increase service costs but do tend to more satisfactory operation and greater utility to the consumer.
L.	Yes	Material only.	Customers using automatic appliances are recommended to call manufacturers or agents for a general overhaul or for parts. For work requiring plumber customer is so informed.	No. Feels that this service is most effective in meeting keen competition of other fuels as efficient operation only can justify economic use of gas.	No	100% increase in five years.	Increased costs due to customers becoming "gas conscious" and thus using services to a greater extent. More liberal service policy since advent of natural gas.
M.	Yes Approximately 15 min. for regulating and adjusting.	Yes—for all time on premises over ¼ hr. and for material.	All work done is left to option of customer. Plumbers are recommended for large piping jobs.	No. Present policy adequate.	No	Yes	Increased costs due to additional house and water heaters.
General Summary	8 give general free service; 4 adjust burners only and 2 charge for all time over a specified minimum.	1 does not charge for any service; 10 charge for material; 1 does not handle parts; 2 charge for cleaning; 1 charges for time over ½ hr.; 1 charges for time over ¼ hr.	9 recommend plumbers for work beyond province of gas co.; 1 does work at customer's option; 2 do all work.	1 feels that some free items might be charged for; 1 recently inaugurated a policy of charging for some items which were free; 9 feel there should be no change in policy.	1 has matter of charging more under consideration; 10 are not considering a change.	10 have had increases in service costs; 2 have had no increases in these costs but one of these has been involved in change-over so costs records may be misleading.	

4. If service to customers is now supplied free of charge do you feel that it would be desirable to inaugurate a charge for all or a portion of this service?

5. Do you contemplate charging for all or a portion of the expense in servicing customers in the future? If so please describe.

6. Has your account for free service to customers increased as a result of the increased use of automatically operated gas appliances, and to what extent?

"The answers to these questions are shown in the attached table.

"To sum up, our inquiry shows that it is quite general practice to charge for a portion of the customer's service work. This portion is principally in the installation of repair parts and cleaning work. As a result of increasing service costs there is a tendency to charge customers for more work than formerly, particularly for those jobs which require considerable time."—*F. A. Lydecker.*

Meter Diaphragm Dressings

"DIAPHRAGM dressings, the subject of this paper are an essential feature of our dry gas meters. In recent years, considerable attention has been paid to them and this is the third year that reports on them have been submitted to the American Gas Association. In addition, much unreported work on them has been done by individual companies."

"The work already reported to this association has shown that the various diaphragm dressings in use are all soluble in the drip oil of manufactured gas and the gasoline of natural gas, and that no dressing possesses any pronounced superiority over the others in this respect. Linseed oil and lead oleate have been reported as satisfactory from the standpoint of resistance to bleaching, but the latter was found to make diaphragms too stiff to be of practical use, while the former seemed to act somewhat similarly, though not to as great a degree. The work to be reported here is largely a following-up of the tests of last year."

"The results of the tests that have been described may be summarized as follows:

1. Plasticized linseed oil dressings were found to lack the bleaching resistance of pure linseed oil.

2. Two dressings of fair bleaching resistance were found: a 70-30 mixture of castor oil and boiled linseed oil, and an oil called L-666. Both of these dressings are more resistant to the bleaching agents of natural gas than to those of manufactured gas.

3. Both of these dressings are gas-tight after being subjected to natural gas saturated with benzol or with heptane.

4. An insoluble coating for a meter diaphragm, in the form in which it is applied to the leather, must not be a solvent for the previously applied oil dressings, in order to provide satisfactory bleaching resistance.

5. The L-666 oil, while insoluble in gasoline, is displaced from leather by liquid heptane, due to the extreme selective adsorptive properties of the leather.

6. Negative results were obtained in tests to find the cause of diaphragm dressing being removed without remaining trace from meters. Apparently it is not due to evaporation of the dressing into the gas. Complete data on cases of this type of bleaching are desirable.

7. Boiled linseed oil, on drying, makes diaphragms too stiff for it to be considered as a practical diaphragm dressing.

8. Diaphragms treated with the 70-30 castor-linseed oil mixture are somewhat stiffer than when treated with the usual dressings, resulting in short-stroked diaphragms, decreased capacity and increased pressure loss. Nitrocellulose coatings act similarly. The L-666 oil is a satisfactory dressing from these standpoints."—*Lyman M. Vander Pyl.*

Blue Gas Production

BLUE gas operation with coke as a fuel is an established success and that any plant can attempt it without fear of any major troubles. With gas coal as a fuel, however, the production of blue gas offers substantial difficulties due to tar pitch formation.

"It is probable that the use of hot water scrubbers, and hot water spraying or flushing of gas take offs from the sets and works connections generally, will be of considerable help in handling tar pitches formed with blue gas operation with most soft coals but this, of course, necessitates a more or less general revamping of all works facilities.

"A plant in the East that is mixing manufactured gas with natural gas and distributing a mixed gas of 600 B.t.u. and .65 gravity, contemplated making blue gas, using 50% or more of gas coal, but abandoned the idea and converted to bunker oil operation instead, due to an expectation of having to contend with the above difficulties."

"It may be noted that this plant is, at present, operating on a basis of 370 B.t.u. carburetted water gas which is 72% of the send-out and which is mixed with a natural gas of 1,185 B.t.u. which is 28% of the send-out.

"The amount of bunker oil used in the 370 B.t.u. gas is about 1.75 gals. per M cu.ft., 80% of which is put through the fire on the backrun, in order to provide high hydrogen content for mixing with the relatively high natural gas percentage.

"It may be further noted that this plant has had to make no general readjustment of customers' appliances, has experienced no meter troubles, no apparent drying out of mains, no increase in unaccounted-for gas and no more than the usual dust troubles.

"It is felt by the operators of this plant that there would probably have been an adverse effect on all the above items if no oil had been used in the manufactured gas." —*Subchairman T. B. Hopper.*

Blue Gas Operation

"THE Chicago By-Product Coke Company water Gas plant has been operating on blue gas over a period of eight weeks, producing from 342 M cu.ft. to 12,500 M cu.ft. of gas per day.

Blue Gas Operating Results—April, 1932

Total gas produced	213,879 M cu.ft.
Gas-machine day (includes clinker time)	3,976 M cu.ft.
Gas per run	9,774 cu.ft.
Average B.t.u. (Thomas Calorimeter)	285 cu.ft.
Coke per M cu.ft. wet basis	33.862 lbs.
Total steam per M cu.ft.	81.58 lbs.
Steam produced in waste heat boiler per M cu.ft.	33.80 lbs.
Generator steam per M cu.ft.	49.62 lbs.
Cycle; (Total Time three minutes)	
36.1% blow @ 14,000 cu.ft. air per minute	65 seconds
2.8% blast purge @ 6,000 cu.ft. air per minute	5 seconds
5.6% steam purge @ 300 lbs. steam per minute	10 seconds
13.9% uprun @ 300 lbs. steam per minute	25 seconds
36.0% downrun @ 270 lbs. steam per minute	65 seconds
5.6% final uprun @ 300 lbs. steam per minute	10 seconds
	180 seconds
30.3 cu.ft. air per lb. steam	
56.5% downrun	
Temperature of waste gas entering waste heat boilers	1,250 to 1,300° F.
Temperature of waste gas leaving waste heat boilers	400 to 430° F.

Monthly Average Blue Gas Analysis:

CO_2	Ill	O_2	CO	H_2	CH_4	N_2	B.t.u.	Sp.Gr.	H_2S
5.3	0.4	0.2	39.2	48.6	0.4	5.8	285	0.565	63 grs. per 100 cu.ft.

"Blue gas operation is somewhat different than carburetted water gas which requires a larger percentage of

CO in the blast gas to store heat in the carburetter and superheater. By reducing the percentage of CO in the blast gas the blast efficiency is increased. This CO reduction is accomplished by using a higher air rate and by reducing the depth of the fire bed and reducing the cubic feet of air to pounds of steam ratio.

"Every precaution should be taken to insure that up and down and blast valves do not leak.

"The machine must be thoroughly purged out before the beginning of the run in order to clean the machine of inerts. Our sets require 10 to 12 seconds of steam purging. The amount of blast purge at the end of the run is determined by the B.t.u. of blue gas required.

"We have not run long enough on blue gas operation to mention the maintenance costs, but from present indications the deterioration of brickwork in generator off-take and carburetter dome will be the determining factor due to the high blast rate. Operating data are shown."—*H. B. Young.*

Significance of Coal Tests

"THIS report summarizes briefly the development of the Bureau of Mines—A.G.A. method for determining the gas, coke, and by-product making properties of coal. In this procedure 75 to 180 lbs. of coal are charged into a cylindrical sheet-iron retort (13 or 18 in. in diameter) which is then welded gas-tight and heated uniformly on all sides in a gas or electric furnace. Tests are made at various temperatures ranging from 500° C. (932° F.) to 1100° C. (2012° F.), and the quality and quantity of gas, coke, and by-products are determined. Application of the method to 20 representative gas or coking coals leads to the following conclusions:

1. Seventy-five to 180 lbs. of charge is large enough to yield sufficient coke and by-products for analysis and physical tests, yet small enough for convenient laboratory manipulation and accurate control.

2. Two different laboratories using this method have obtained satisfactory agreement of results on the same coals.

3. The yields (except ammonia) are in fairly good agreement with those obtained in commercial plants and do not require correction factors.

   a. Plant yields of coke, gas, and B.t.u. of gas per pound of coal fall between the test results obtained at carbonizing temperatures of 900° and 1000° C. (1652 and 1832° F.), and usually agree with the average of the 900° and 1000° results.
   b. The amount of light oil scrubbed from the gas of the test apparatus is less than that scrubbed from the gas of commercial plants because the test condensing train throws down more of the light oil with the tar. However, the total yields from gas plus tar at 900° C. are approximately the same as the total from plants.
   c. The tar yield from the 1000° C. carbonization shows the best agreement with plant yields, although on several coals the plant yields were one to two gallons per ton of coal less than from the test apparatus.
   d. The ammonia yield from the test apparatus is low due to decomposition induced by the iron of the retort.

4. The 13-in. retort indicates the relative shatter and tumbler indices of the coke, but the figures are on a lower scale than those obtained for the same coals in by-product ovens. This difference is largely eliminated by using retorts 18 in. in diameter. The larger retort gives larger pieces of coke which are less fractured due to the slower rate of heating.

5. The coke from the test retorts has a lower apparent density and a higher percentage of cells than by-product oven cokes from the same coals. Tamping the charge of coal in the retort increases the apparent density and lowers the porosity to figures closely approaching those obtained in by-product plants.

6. Comparison of coke made from the same coal in cylindrical retorts heated on all sides, with coke made in rectangular retorts heated on opposite sides only indicated that the size and strength of the coke is governed by thickness or diameter of the retort rather than by the shape. Larger retorts gave stronger coke with fewer fractures than small retorts, regardless of shape.

7. The method of making carbonization tests at a series of closely controlled temperatures has proved valuable for determining the effect of washing coal on coke quality and by-product yields, for studying the effect of blending coals, and the effect of addition of fusain and other inerts to coal.

8. Similar apparatus has been installed by two commercial coke-oven operators and found very useful for the investigation of operating variables of the plant and the determination of optimum blends from available coals, for producing the best coke consistent with adequate gas and by-product yields.

9. The method lends itself to investigation of the relationship of the composition, constitution, and physical properties of coal to its carbonizing properties and the quality and quantity of the products obtained."—A. C. *Fieldner and J. D. Davis.*

Gas Detection Instruments

"THE individual limitations of the existing gas detection instruments led the Company with which the writer is connected to undertake the development of a combination of detection instruments which would indicate whether an atmosphere is safe for entry, whether it contains combustible gases in concentration presenting an explosive hazard, and whether combustible gases if present are the product of gas manufacturing processes, and at the same time, fulfil the practical requirements as to weight, portability, safety and simplicity of operation. The result has been a combination of a carbon monoxide detector, a combustible gas indicator of the hot wire type and a wick-type flame safety lamp of special design. Provision is made for aspirating the atmosphere to be tested from its source, and the detection apparatus is fitted with adequate flame arrestors to prevent propagation of flame to the main body of the atmosphere.

"This combination has been used in the Company's service for the past two years and has met its varied needs satisfactorily. During this period the apparatus has undergone various refinements which are embodied in the present apparatus. Its applications have included the determination of atmosphere conditions in confined spaces such as manholes, tanks, and the space above the piston of waterless holders; the location of the point of leakage from gas mains in connection with bar hole surveys; and the determination of the end point in purging operations involving the displacement of flammable gas by means of inert gases.

"The apparatus is assembled so that the atmosphere under test is drawn in turn through the sampling hose, the carbon monoxide detector chamber and combustible gas indicator, and forced into the flame space of the safety lamp by means of an aspirator bulb located between the combustible gas indicator and safety lamp. The complete instrument weighs approximately 17

pounds. It is suspended from the shoulders by a leather harness in such a manner as to cause little discomfort even when carried throughout the day. Any reasonably intelligent person can be taught the use of this instrument in a day.

TABLE 1—Interpretation of Observations

Condition	*Safety Lamp*	*Combustible Gas Indicator*		*Palladium Chloride Test Paper*	*Atmosphere Condition Indicated*
	Flame Characteristics	Indicator Reading	Color of Scale	Color Change After 10 Minutes	
1	Flame burns at normal height	0 to 1	White	No change in color	Safe for Entry. Air, substantially free from combustible gases.
2	Flame tends to lengthen and may extinguish (Note 1)	Higher than 6	Orange or Red	Color changes to black	Unsafe for Entry. Combustible gas indicated in concentration approaching or exceeding lower explosive limit. Carbon monoxide indicated.
3	Flame tends to lengthen and may extinguish (Note 1)	Higher than 6	Orange or red	No change in color	Unsafe for Entry. Combustible gas indicated in concentration approaching or exceeding lower explosive limit.
4	Flame burns with no significant change in length	.1 to 6	Yellow	Color changes to black	Unsafe for Entry. Combustible gas indicated in nominal concentration. Carbon monoxide indicated.
5	Flame burns with no significant change in length	1 to 6	Yellow	No Change in color	Unsafe for Entry. Combustible gas indicated in nominal concentration.
6	Flame shortens and is extinguished (Note 1)	0 to 1	White	No Change in color	Unsafe for Entry. Atmosphere deficient in oxygen, substantially free from combustible gas.

Note 1. When the flame is extinguished, and the Combustible Gas Indicator reading is lower than 10, admit air and the sample under test to the combustible gas indicator and observe whether the reading is increased thereby. Record the maximum combustible gas indicator reading obtained (either before or on admission of air).

"The carbon monoxide indicator is a piece of absorbent paper wetted at the time of use with a solution containing 2% by weight of palladium chloride, which blackens on exposure to an atmosphere containing carbon monoxide to the amount of 0.05%. It indicates the presence or absence of carbon monoxide in toxic concentration, but no attempt is otherwise made to interpret the finding quantitatively. The palladium chloride test paper is also discolored (18) by the presence in an atmosphere of 0.01% or more of hydrogen sulphide, 10 to 15% or more of gasoline vapor, 1% or more of ethylene or 5% or more of hydrogen. Lead acetate solution has been used successfully in the indicator to differentiate between carbon monoxide and hydrogen sulphide.

"The combustible gas indicator is of the hot wire type. The value of this type of combustible gas indicator is due to the fact that it will indicate the relative explosibility of a mixture of the common flammable gases and air with respect to the lower explosive limit, regardless of what the lower explosive limit of the particular flammable gas present may be. It is necessary to have present in the mixture an ample excess of oxygen over that required to support combustion. The principle upon which the combustible gas indicator of the type selected operates depends upon the fact that the burning of a combustible gas on the surface of a heated metallic filament is connected in one arm of a balanced Wheatstone Bridge circuit. When the filament is exposed to a combustible gas-air mixture, the resultant combustion throws the electrical circuit out of balance and current flows through the galvanometer, causing a deflection of the needle. The magnitude of the deflection is approximately proportional to the concentration of the combustible component and is indicated on a scale that is graduated with reference to the explosibility of the mixture.

"The scale of the instrument illustrated is divided into 15 major divisions, which permits calibration of the lower explosive limit. To facilitate interpretation in instrument with mixtures containing known amounts of any combustible gas in air in concentration below the the field, the scale is also colored white, yellow, orange and red. The white section (0 to 1) indicates that for all practical purposes, the atmosphere is free of combustible gas. The yellow section (1 to 6) indicates that the atmosphere contains a nominal concentration of combustible gas. The orange and red sections indicate that the atmosphere contains a dangerous combustible gas content which approaches the lower explosive limit or is within the explosive range.

"The wick-type flame safety lamp serves the double purpose of showing whether the atmosphere is deficient in oxygen for respiration and whether it contains sufficient oxygen to give a true reading on the combustible gas indicator, since experiments have shown that a true reading will be obtained if the oxygen content is sufficient to support combustion of the lamp flame.

"The lamp used in the indicator has been made suitable and safe for testing unknown atmospheres by replacing the usual air admission protecting ring with a special admission ring, designed to permit aspiration of the atmosphere to be tested into the combustion space of the wick flame.

"Other important features of the combined apparatus are:

"A shield is provided around the carbon monoxide chamber and the upper part of the flame safety lamp which conducts the heat developed by the lamp to the carbon monoxide test chamber, thereby warming it and speeding the reaction between the palladium chloride and carbon monoxide, particularly in cold weather.

"The test papers and palladium chloride solution bottle used for the carbon monoxide test are carried in convenient pockets on the combustible gas indicator.

"The carbon monoxide test chamber is equipped with a by-pass so that a part of the sample may be trapped in the chamber and tested while observations are made with the combustible gas indicator and flame safety lamp.

"The combustible gas indicator is equipped with effective flame arrestors at the inlet and outlet connections, which prevent propagation of flame to the main body of atmosphere under test, even though pure hydrogen be the combustible gas in the atmosphere.

"The combustible gas indicator is provided with a three way device which permits the aspiration through the indicator of pure air, the atmosphere alone, or a mixture of air and the atmosphere under test. The air inlet of the three way device is equipped with a needle valve which allows control of the quantity of air admitted in mixture with the atmosphere under test. The simultaneous introduction of air with the sample is required when the concentration of combustible gas in the sample is greater than the lower explosive limit, and when the sample is deficient in oxygen, both of which conditions are indicated by the flame safety lamp."—*S. S. Tomkins.*

Industrial Gas Section

TWO meetings were held by this section under the leadership of Mr. W. F. Miller, chairman. Papers read at the first meeting were two in number, one by Mr. E. D. Milener and the other by Mr. J. P. Leinroth. Mr. Milener's paper told of the research and development work that is going on in Industrial Gas utilization and Mr. Leinroth's outlined the nature of the competition that is being met. Some interesting discussion was indulged in by Prof. White of Michigan University who said in part that considerable research in metallurgical procedure would be of benefit to Industrial Gas. Still other discussion went on to narrate how gas was retained in a large plant due to perfecting a process and thereby forestalling oil fuel which was under serious consideration. On the second day an open forum on the sales of gas for a variety of industrial applications was held. President-elect Hewitt gave a fine talk on his interest in and the need for greater sales of Industrial Gas.

E. L. Wilder,
Chairman-Elect, Industrial Gas Section

Industrial Gas Developments Sound Modern Note

THIS excellent paper by Mr. Eugene D. Milener is given in full.

"It almost seems like a paradox, but the facts stand out unmistakably that during the present depression, industry has improved its products and services to a greater extent than has been done in similar lengths of time during more normal years. The facts further point out that these improvements are most widespread and are included in the goods and services of not only the newer and fast growing industries but also to a most noticeable extent the older and more conservative industries. The reasons for this can be traced, but as they involve many economic as well as material considerations, I shall not attempt to trace them here. Instead, I shall simply point out a few examples that to my mind make the facts stand out and illustrate how widespread the improvements have been.

"Improvements have been mechanical; they have included increased adaptability and they have included style, that intangible something that no one has yet been able to define but which influences everyone in the purchase of commodities whether those commodities are consumable merchandise, permanent equipment or personal services rendered to individuals or in connection with machines or other devices.

"One can see wherever he turns, concrete examples of this vast improvement that has been going on. Household devices of every kind have been altered to give better service and have been styled to give pleasing effects.

"Nineteen thirty-two, radios, mechanical refrigerators, heating equipment, lighting and yes, our furniture and decorations are so advanced over those of nineteen twenty-eight that the difference hardly has to be pointed out.

"Likewise with transportation, the flivver has passed on and in its place has come a parade of low priced cars that resembles a regal procession. Air planes and interstate busses have been so fully developed and equipped to make a popular appeal, that the public likes them and is taking to them in droves. Railroads, not to be outdone, are at last seriously getting down to the job of making their equipment and service appeal. Result—door to door freight delivery, upper berths each with separate set of stairs and dressing platforms, and many new types of coaches that have chairs more comfortable than the older parlor cars.

"In factories, this transformation can be noticed. Improved lighting, ventilation, material handling and machine tools have all made wonderful strides despite the reduced volume of business.

"Every industry has had a hand in this movement as even a cursory examination of the products displayed in hardware stores, department stores, and even five and ten cent stores will show.

"Gas utilization equipment has not been overlooked in this extensive program of modernization and improvement. Decided advancement has taken place in industrial and commercial as well as in the domestic fields.

"I am not going to dwell at all on domestic gas equipment. Step into any gas company or progressive dealer's sales room and compare the equipment on display with that which was shown three or four years ago. The difference is so pronounced, that it is noticeable at once. Likewise with commercial gas equipment. The use of monel metal, chromium plated parts and clever designs has made commercial appli-

ances more attractive and more suitable to the tasks they are to perform. Color has become a full grown feature of both domestic and commercial gas appliances which, together with the other features I have mentioned, serve to keep gas service fresh and full of popular appeal. I think that every gas equipment manufacturer has contributed something to this modernization program and deserves the thanks of the entire industry for the part he has played.

"Industrial gas equipment has gone modern in more ways than one. Besides going modern in looks, it has gone modern in mechanical make-up, in processes carried on and in adaptability to advanced factory layouts.

"We have to deal with a different set of factory managers from those we dealt with some years ago. They know more. They are more expert in sizing up their heating requirements and in preparing specifications that we must meet if we are to do business with them. I suppose that at no time has the percentage of trained engineers holding factory jobs been greater than it is today. I suppose also, that at no other time have our competitors had such highly trained personnel as they have at present. Old time methods, rule-of-thumb methods, and out of date processes will not today get new business or hold old business. Our industry realizes this. It is taking steps to meet these conditions and is meeting with success. It is necessary to keep gas fresh and full of popular appeal.

"An examination of all the standard lines of industrial gas appliances will show the extent to which they have been improved and modernized. Batch type carburizers, for instance, have been improved and continuous carburizing machines have made their appearance. Last week at the Steel Treaters show, I was talking to an official of one of the largest automobile companies, and I never heard gas get a better send-off than he gave gas carburizing. That man also told me of some of the plans he has for lining up one heat treating machine ahead of the other and quenching in between, when necessary. That is the modern note and woe unto the fuel that can't be made to fit into that scheme of things. Walking beam furnaces, chain conveyors, car type, pushers and screw conveyor furnaces are what we have to offer and they, together with improved controls are keeping gas to the front, no matter how stiff the demands, modern factories place upon it.

"Immersion melting with gas has been recently brought to the point where it practically duplicates the equipment furnished for electric melting. It was only a few years ago that the only gas immersion heaters were crude cumbersome home-made pipe affairs. I know, because I have made a number of them myself and installed them and I thought they were good. But they were no comparison with what we have to offer today. That modern development will prevent electric immersion heating from getting ahead of us as it so seriously threatened to do.

"The new process for quick cleaning clothes that uses gas heat energy, is another indication of the modern note in applying gas. That process and equipment is made by a mighty large concern. A few years ago the chief engineer of that concern told me that they could not see gas as an advanced method of generating heat for their line of machines and that they were going to concentrate on steam and electricity. Further study has caused them to change their minds and gas is back into the picture in connection with their most modern development.

"The modern note in factories is getting to be 'make the factory atmosphere or weather suit the process;—not alter or slow up the process to suit the atmosphere.' We now have really modern ways of heating factories with gas, including unit heaters that can be placed most anywhere and which will drive the heated air in any direction it is wanted. No more need to depend entirely upon gravity circulation or upon natural drafts. But that is not all. Dehumidified air and cooled air will help many manufacturing operations. I recently had compiled a list of thirty-four industries that are now using dehydrated air and undoubtedly there are others. They are modern plants where manufacturing is carried on in the modern way. Modern gas operated dehydration equipment is now available to take care of the requirements of the largest as well as the smallest factories, and each gas company should immediately locate every factory in its territory that can profitably use dehydrated air and get them to use gas heat energy in producing it. The same way with cooled air such as is needed in chocolate dipping rooms. Steam jet refrigeration, using steam from gas boilers is now ready to take on this load for gas and every effort should be made to secure as much of this business as possible.

"I notice an increased use of water jacketing, where required in connection with gas burners, furnaces and heating machines. This represents advanced engineering. The building-in of quick cooling arrangements in connection with heating apparatus frequently results in great savings and an increase in quality of the product being made.

"As an example, take the modern way of preparing sand and emery for making sandpaper. The demands of high quality are that all possible organic matter and water must be driven off by heat, which heat incidentally breaks up the grains into sharper and harder grains. Water cooling, built into the machine, quickly cools the sand and allows the manufacturing process to rapidly proceed. Otherwise the sand would retain its heat for an extremely long time. This is simply an example of how modern gas machinery is being engineered to fit modern production requirements.

"Flame cutting is the modern method of cutting steel. Studies of the flame requirements indicate that gas has certain qualities that are favorable to the operation. In fact it seems as though these qualities are more favorable to cutting than are the qualities of acetylene. Gas torches have gotten into regular use for both large and small quantities of cutting and have certainly proven their worth as regards speed, thinness of cut, oxygen consumption, cleanness of cut and of course have shown tremendous reduction in cost of gas as compared with that of acetylene. Complete metal cutting machines, featuring the use of gas torches, are now regularly being manufactured and sold. This is another touch of modernism in applying industrial gas. Cutting is an operation of separating metal, largely through burning part of it. Welding on the other hand, is a bonding operation where burning apparently plays no part. Unfortunately, whereas the characteristics of gas fit in perfectly for cutting, they are less favorable to successful welding than are the characteristics of acetylene. While research has made some progress in getting around this fundamental handicap, efforts so far have been unable to entirely overcome it.

"Considering that there have only been three or four ways of burning gas, the advent of a phenomenon that provides one more way is an event of importance. We do not yet know how far diffusion combustion can be applied to difficult heating operations and to providing favorable atmospheres in troublesome instances.

"We do know however, that diffusion combustion will play an increasingly important part in the modern

scheme of industrial heating. The progress made this year has been pronounced. In the further development of the theory, and the necessary equipment for interpreting it, as well as in public acceptance a lot of ground has been covered. The field of combustion should be still further explored and any other method of burning gas that can be devised should be developed to the fullest extent for the benefit of the industry. In that connection although it does not involve a new method of combustion I am particularly interested in the possibilities, in those instances where a very even heat distribution is desired over a surface, of a 'sweeping flames'. We, of course, are prone to think of our business as always remaining still, but we can paint the walls of tanks and furnaces with heat much the same as a brush paints a wall, and secure remarkably even heat distribution. Predictions at this time, as to commercial possibilities are of course premature, but I believe 'sweeping flames' offer opportunities to greatly improve some heating operations.

"In the modernization of gas burning equipment, improvements in control apparatus are playing a most important part. A close study of the temperature and atmospheric controls and the various gas valves and pieces of timing apparatus that the manufacturer members of the Association are now regularly offering the trade will show a striking thing. Whereas a few years ago we had to in most cases alter a few standard controls to meet all situations, today we can draw on complete lines of specialties that are made especially to meet the great variety of unusual and exacting conditions appliance manufacturers and industrial engineers must face. Without these advanced controls, modern gas equipment would not be modern.

"What is modern one year is likely to not necessarily be modern the next year. The pace is swift and gas must be kept up near the front. As fast as one factory operation after another reaches the limit of batch type production, we must be ready with suitable gas heating apparatus of the conveyor, walking beam, chain, screw or gravity types of continuous operation. What were once merely gas furnaces are now gradually being turned into machines, many of them with several functions to perform besides heating. At the same time our batch type apparatus is being fully modernized. It is being simplified in some cases, but we have not hesitated in making appliances more complicated when occasion has demanded. In either case they have been modernized to do the job in today's manner.

"Industrial gas engineering has kept pace with modern industrial processes. In some instances our industry has made some notable contributions to certain processes. Its researches during the last few years have helped metallurgists, ceramists, foundrymen, food manufacturers and air conditioning engineers to point the way. Its researches are also helping to clarify the age-old problems of atmospheres in connection with industrial heating processes. Furthermore these researches are moving rapidly toward a more complete understanding and permanent solution of some of our most basic combustion problems. Three new combustion bulletins that are out this week supplement that most excellent handbook of Combustion that was published earlier in the year. The bulletins are on preheated air, elimination of burner noises and a standard nomenclature of industrial gas combustion systems.

"Before I close I want to make one plea. I presume there is hardly a man here who has not suffered from having an antiquated ugly gas furnace or oven directly tested against a good looking and modern appliance using some other source of heat and then seeing comparisons made on that basis. Every such test is bad enough in itself, but every test conducted and opinion formed on antiquated pieces of gas equipment creates widespread resentment against the use of gas. We have but one choice in the matter and that is to enable our customers to take every advantage of the very modern equipment we now have to offer them and to keep plugging to forever keep that equipment sounding the modern note both as to mechanical make-up and style."

Burning Gas with Preheated Air

FROM the Committee Report, "Preparing Industrial Gas Technique to Carry a Greater Share of the Industrial Heating Load," there is given below the section, "A Study of the Characteristics of Burning Gas with Preheated Air."

"During the past year the research project entitled 'A Study of the Characteristics of Burning Gas with Preheated Air' assigned to the American Gas Association Testing Laboratory by the Committee on Industrial Gas Research was completed and a bulletin covering the entire investigation will be issued in the near future. This project was undertaken nearly three years ago to obtain complete and authoritative data on utilizing waste heat in the flue gases of industrial gas furnaces by preheating the air used for combustion. Thereby, the furnace efficiency may be increased and cost of operation, which is so important not only at present but at any time when competition with other fuels is keen, may be decreased.

"The need for, and desirability of, reliable information on recuperation as expressed by the opinions of industrial gas engineers to the Committee on Industrial Gas Research was fully verified by a thorough review of the literature to date. Not only is there a scarcity of published articles on the subject but the information given is not in agreement on the possible savings by recuperation. It seems probable that the inconsistencies reported in experimental work on which the calculations for possible savings were made may be attributed to the method and place of measurement of either the flue gas or the air temperature. It is also exceedingly important and usually very long and tedious to accurately control and maintain the furnace temperature. In the present work a great deal of attention was given to those factors to insure accurate measurements. Special high velocity thermocouples were used for temperature measurements and ample time was permitted for the test furnace and recuperator to come to an equilibrium temperature.

"Having the benefit of the previous two years' experience it was possible this year to compile and correlate a large amount of data so that the work might be brought to a conclusion. A new recuperator and test furnace were built early this year so that a greater range of air temperatures and furnace temperatures could be secured. Three reports containing 67 pages and 20 illustrations and blue prints as well as a revised outline of the scope of the work and a brief summary of progress prepared by the laboratory staff each month were reviewed by the Research Committee.

"In order to decrease the long, tedious testing periods to obtain a heating curve it seemed desirable to develop a formula which could in turn be checked by experimental results to determine its correctness. Accordingly, a mathematical analysis of the heat balance of an industrial gas furnace burning gas with preheated air was made. This resulted in the development of formulæ, which upon application to previously obtained data, indicated a very close agreement between theoretical and

experimental values. It was therefore felt advisable to extend the scope of experimental work to include a greater range of furnace and air temperatures with two gases, namely, natural and coke oven gas, in order to check the formula. By this method of procedure it was possible to establish conclusively the effect of burning gas with preheated air in a comparatively short length of time which otherwise would have taken practically a year of continuous test work.

"When a pre-mixing combustion system is used with preheated air it is necessary to know the ignition temperature of the gas being burned to determine the maximum safe preheat temperature. Published data on ignition temperatures was in poor agreement and the methods used to obtain them did not seem applicable to practical use for conditions where preheated air is used. Consequently an apparatus for determining ignition temperature of gases in practical gas mixing situations was built and sufficient data obtained to set safe operating limits on various gases. This work will be reported in more detail in the bulletin but it may be stated that preignition of ordinary city gas and air will not take place at temperatures below 1,000° F. It is further pointed out that nozzle-mixing burners not only overcome the danger of preignition but also possess several other desirable features, and for this reason, their use may be recommended when burning gas with preheated air at high temperatures.

"Some of the more important conclusions which are amplified in more detail in the bulletin are briefly stated below:

1. The heat salvaged by recuperation may be utilized by any of the following means depending upon the process involved.

a. The volume of gas used for a given job may be decreased.

b. Production may be increased because of the greater quantity of heat available.

c. Temperatures of the furnace may be increased.

2. Mathematical formulæ as given below have been established for calculating the possible gas savings and theoretical probable increase in production due to preheated air.

a. Formula for gas savings calculation

$$S = \frac{A}{G - F_g + A} \times 100$$

S = per cent gas savings.
A = heat in air, B.t.u. per cu.ft. of gas.
G = average gross heating value of gas per cu.ft.
F_g = flue loss above room temperature including latent heat of vaporization, B.t.u. per cu.ft. of gas.

b. Formula for calculating possible increase in production

$$S_w = \frac{P}{W_1} \times 100$$

Where
S_w = percentage increase in work.
P = heat introduced by preheated air, B.t.u. per hr. above room temperature.
W_1 = heat absorbed by work with no preheat, B.t.u. per hr.

3. Experimental tests have verified the correctness of the formula for

a. Natural and coke oven gases (or any city gas).

b. Either reducing, neutral or oxidizing furnace atmospheres.

c. Flue gas temperatures from 1,400-2,500° F.

d. Preheated air temperatures from 80-1,624° F.

4. From the results obtained it is concluded that the formula given in (2) is correct for all industrial gas furnace applications.

5. Gas savings in excess of 40% have resulted when burning natural gas with preheated air at approximately 1,600° F. The practicability of air preheated in excess of that temperature seems doubtful since the economic limit from the standpoint of investment for most installations would be exceeded."

Commercial Section

THE two meetings were presided over by Vice-Chairman Walter C. Beckjord, the first being a joint meeting with the Manufacturers' Section. Dealer Cooperation, advertising, the modern gas range's adaptability, servicing, air conditioning, selling automatic water heaters, sales campaigns, home service and selling refrigeration were the subjects which were dealt with in these meetings.

As in many papers read before other sectional meetings, the present aspects of competition were emphatically presented in many of the subjects handled and much benefit should be derived from the papers due to the fact that they were refreshingly devoid of inspirational statements. It is felt that these papers drove home the fact that the gas man must battle for business with all the resources at his command, but the fight can be won if he but sets his mind and energy to the task.

Walter C. Beckjord,
Chairman-Elect, Commercial Section

Today's Advertising Needs

THIS paper, read by Mr. William H. Hodge, brought out some interesting points in a very commonsense and understandable manner. Below are some of the high lights of the paper.

"The saner heads in the advertising business are calling upon their erring brethren to wake up from their present nightmare and to get back to the first principles of propriety, good taste, good sense, truth, sincerity, decency and fair play.

"Advertising has no excuse for existence unless it contributes to human welfare and human happiness and, if you please, to human righteousness. Unless it can do this the world is better off without it."

"The kind of advertising which has lowered accepted standards needs to learn to respect the consumer—the public—and not to hold him and his wife in thinly disguised contempt. It should respect the consumer's brains; respect his morals; respect his obligations to his family and himself and give him credit for being something more than a sheep who can read. Above all it should respect his pocketbook, and what his pocketbook may or may not contain.

"Too many advertising men have planned their operations on the myth of the 12-year-old average adult mind. They have studied statistics instead of studying people. All the wisdom was in skyscraper offices; none in the cottages. The way to sell a shovel is to call attention to perfume; the correct approach to the sale of airplanes is by way of a coal mine; and the sure shot theme for selling anything is that amazing new discovery S E X."

"The average mind which the advertising man or woman must convince today is probably the shrewdest purchasing mind in the world. It has been duped by hokum, matured with dearly bought experience and sharpened by adversity. It is lying in wait to make monkeys out of the advertising people who have been educated on superficial, egotistical and heartless theories and nurtured by statistics derived from market surveys and analyses."

"Advertising practitioners should drop the fear complex in developing business as well as in planning copy. Millions have been spent in futile advertising campaigns because industrialists have been worried into panic in the apprehension that somebody would steal their business while they were out playing golf, or spending an evening at the movies. The well-known absurdity of the 'fight for the consumer's dollar' is another impulse which has made many converts to advertising crusades of more or less dubious pilgrimage."

"In spite of all this, the gas industry has a definite use for advertising and can make it pay good returns if handled with courage, intelligence and persistency. The very nature of the business demands that at least the great bulk of such advertising be done locally—that is to say in the simplest and most direct line to customers and prospective and possible customers.

"In an effort to learn what gas companies are doing about advertising in this year of depressions, the statistical department of the American Gas Association endeavored to collect some comparative figures for the past four years. Eleven companies, out of some twenty queried, responed with facts representing about 30 per cent of the total manufactured gas industry.

"These companies had their peak year in both gross operating revenues and advertising expenditures in 1930, when they spent about 33 cents per customer and eight-tenths of one per cent of revenues on advertising activities.

"In 1932 the same eleven gas companies have reduced their advertising expenses only about 10 per cent, while their gross revenues are expected to decline about 7 per cent compared with 1930 and 1931, revenues are off 3.9 per cent; advertising expenditures off only 7 per cent. From an earnings point of view I think this is a decidedly good showing. It doubtless reflects the determination to keep up sales and advertising effort on a substantial basis."

"During the present difficult times we should harness sales and advertising efforts to better advantage than ever before, and strive for the most effective team pull in the most direct manner. We do not need to think in national terms to produce business within sight of the gas holder. No great coordinated drives designed to sweep over states, regions and nations should be necessary to get all the business that can be sold on the mains of any particular gas company.

"Since the war it has seemed impossible to get up even such a simple thing like a horseshoe pitching game without considering its ultimate relation to national horseshoe pitching activities, and the commercial possibilities of national exploitation. Thought and energy that should go into the hard grind on the home lot seems to find a more glamorous field in the national arena. Everyone wants to be in the big leagues."

"A first class gas company sales manager has a far better knowledge of the conditions and problems in his own particular territory than any outsider can discover for him. The daily affairs of his own company are an accurate and intimate index of the financial, economic and mental condition of the people of his community. He can secure much help and stimulus from other companies and other sales managers; from organizations like the one we are attending and other sources, but none of these can substitute for his own familiarity with his own job.

"So it is with advertising problems. They are best solved at home and by people right at home. Assistance may be obtained from outside, but it is the competent advertising people closest to the job, day and night, who must carry the burden and play the largest part in gettting results.

"Co-incident with the depression has come a tendency to economize on art and typographical expense in the production of advertising. No one denies that a proper degree of economy should be practiced under prevailing conditions, but to devitalize advertising by the mere process of cheapening, most assuredly will not be profitable.

"Ordinarily, far too little thought in advertising discussions is given to the actual creators and producers of advertising—the copywriters, artists and typographers, who do the real work. If we expect these craftsmen to continue to advance in efficiency and to give sales value to white paper, postage stamps and blank walls, we cannot do it by depriving them of all incentive to progress.

"It is my firm conviction that we should spend less time and traveling expenses in discussing and planning proposed national and regional efforts, and divert these energies into company sales and advertising activities intended to do just one thing—hold and add to the business enjoyed by our own particular, individual concerns."

The Modern Gas Range

MR. W. FRANK ROBERTS presented an excellent paper, "How the Modern Gas Range Fits into the New Scheme of Things," in which he traced the growth of cooking from the kitchen coal range to the modern gas range with all its time and labor saving accessories. He went on to show how the electric range, with its slogan of modernity, edged into our rightful cooking field. Also, he declared that the aggressive campaign of the electric range had brought us to our senses and "was a blessing in disguise".

Some striking portions of Mr. Roberts' paper are given:

"What was happening to the gas range while the rest of the home—practically every department of it—was being taken over by electrical servants? Why, it went merrily along, for the most part—a naturally efficient cooking apparatus, accepted as an essential part of every kitchen. Accepted and forgotten, except at meal time. It didn't cost much to buy and very little to run; it didn't wear out; it went right on cooking even with the

worst of care; and though it wasn't very ornamental, it did what was expected of it—cooked food well and inexpensively.

"Women who insisted upon having every new labor-saving contrivance, so cleverly developed and so aggressively sold by electrical manufacturers, just took the old gas range for granted."

"In other words, while all the other mechanical servants in the home were being dressed up and refined and improved to be sold as indispensable *luxuries*—luxuries that every up-and-coming American was made to feel she deserved and had a natural right to—the gas range was being merchandised as an unfortunate necessity, purchased only when necessity demanded and—at a very modest figure. In other words, the gas range was regarded simply as a plain, honest, ordinary kind of thing which could be depended upon to do its duty, but which really couldn't be expected to have any but a utilitarian appeal.

"Manufacturers weren't doing very much to better that state of affairs—for they felt that, whatever else happened to the American home, gas would always reign supreme as the cooking fuel.

"Then electricity walked boldly into the kitchen and brought all its well-known and highly regarded conveniences with it.

"This move, gentlemen, was a blessing in disguise to the gas range industry. It woke us up—it disclosed our unlimited possibilities."

"In the entire field of gas appliance manufacture there was no more striking transformation than that which took place in the gas range. Here was the most essential appliance in the home—one which was in use five or six hours out of every day, 365 days in a year. It deserved the greatest possible attention and the most careful preparation for its new, modern role. Needless to say, it got it."

"Down in her heart the housewife has always been convinced—if she has had any experience at all—that nothing takes the place of gas for cooking. Provide her with this perfect fuel in an appliance of truly beautiful design, equipped with the latest time and trouble-saving conveniences, and nothing will ever replace the gas range in the American kitchen."

"The enforced restrictions on buying dammed up a tremendous reservoir of needs in homes in every station from the humblest to the highest. No income has passed unscathed through the economic cataclysm through which we are now passing. When this dam is opened, when this burst of buying starts, it's what the gas industry does today that will determine its share of this new prosperity—a prosperity that will be unleashed, as buying restrictions are removed through improved business conditions."

"From the gas range manufacturer's viewpoint our attention must necessarily be directed to the retention and extension of the cooking load. From a merchandising or from a load-retaining point of view, this profitable business must be protected and every safeguard thrown around it. In the invasion of new appliances, in this competition of fuels as well as competitive thought, public appreciation for gas must not become a matter of minor importance in the consumer's mind.

"A new conception of gas cooking must be sold to the American public; a modern, up-to-date, attractive conception of an erstwhile drab and uninteresting picture. New appliances must be developed to present this picture in its most attractive light. We might look back over the history of mechanical refrigeration, an outstanding example in these times of falling sales. The mechanical refrigerator offered the housewife a service so superior to the old ice-box, as to cause an urgent desire for every housewife to possess one. We must present to the public a superior cooking service so that the new gas range will also create an irresistible urge to own one."

"We must all realize the importance of an associated effort and be willing to contribute to it. This does not merely mean a contribution in money—but a contribution of viewpoint, interest, confidence and courage as well. We have been so much concerned with our selfish interests that at times it seems we have overlooked this cardinal point—that the most selfish advantage we each can gain will come from an unselfish program.

"Nothing complex is required. Let us all realize that our new responsibility is that of manufacturing customers, not products. Then let us design our products to make the public dissatisfied with those they now own, price the new product to give a profit to all, bring them nearer to the public through all manner of legitimate outlets with whom we fully cooperate. Put a program behind them that will permit each selling factor to gain the fullest advantage from the efforts of all, and, finally, let us realize that all should contribute to that part of the responsibility which benefits all."

Hugh H. Cuthrell, manager, new business department of The Brooklyn Union Gas Company, Brooklyn, N. Y., received outstanding recognition at the convention when he was presented with the Charles A. Munroe Award for noteworthy and meritorious work in matters relating to merchandising and dealer cooperation. The presentation took place at the opening session of the convention at the Hotel Traymore.

This award, consisting of a substantial financial recognition accompaniel by an appropriate certificate, was established by Charles A. Munroe, a former president of the Association. It provides for the recognition of any individual who, in the opinion of the A.G.A. Executive Board has to the gas industry recently made an individual contribution of distinguished and outstanding character to the industry.

The accomplishments which won the award for Mr. Cuthrell have been so successfully developed in the territory of The Brooklyn Union Gas Company that cooperation with appliance dealers now is reported to be unusually satisfactory, and have attracted nation-wide attention.

Mr. Cuthrell is chairman of the American Gas Association Committee on Trade and Dealer Cooperation.

Salesmen Compensation

THE paper, "Dealer Cooperative Activities on the Pacific Coast," by Mr. F. M. Banks went on to discuss the many problems of dealer cooperation which the

Pacific Coast companies are working out. As regards the method of compensating salesmen Mr. Banks noted the following:

"In the light of a retailer's understanding of the fundamental aim of promotional selling, and its beneficial effect upon his business the method of compensation of utility field salesmen becomes less controversial. However, with men paid entirely or principally by commission close supervision is required if flagrant cases of conflict are to be avoided. No case of straight commission compensation has come to my attention on the coast, but there is one case of straight salary payment which is said to be satisfactory. However, that utility serves only small communities over a scattered area, and possibly the acquaintance of prospect and utility salesmen and retailer aid in the successful operation. Pacific coast experience with straight salary in larger centers has been anything but good. The difficulty of supervision, the lessened incentive to create prospects, and the attempts of some retailers to bribe salesmen to turn their prospects over to them have made that method ineffectual.

"Experience with the plan assigning utility field men to the job of creating prospects to be turned over to dealers, with commission paid upon dealer sales accomplishment has been poor. First, the task of creative selling with no particular appliance about which to build a sales presentation was extremely difficult, and the men fell into the habit of listing dealer sales without doing any work. Finally the dealers refused to furnish a list of sales unless the salesmen split their commissions with them.

"If a utility sells appliances definitely representative of the best in each class it serves in the effort to establish a public acceptance of that standard and that price range, it becomes easier for retailers generally to sell at or near the same price range. If at the same time the utility selling program is constructive in that it sells on the basis of creating desire for service and is not directed solely at the particular appliance, then retailers will benefit directly from the work. Proper supervision of men on part salary and part commission under those conditions will produce results, and intelligent retailers can be brought to see it as a reasonable and helpful activity. If manufacturers will talk constructively to their dealers on the matter much headway will be made toward a proper understanding of the industry by retailers generally. Too often the tendency of manufacturer representatives is to agree with their dealers that utilities are usurping a field which is rightfully their own, knowing full well that he would talk differently if he happened to be selling to the utility in that territory.

"An interesting experiment is being tried in two small communities on the coast which bases compensation partly upon salary and partly upon commission but on an unusual basis. Each dealer in the salesman's territory has an established quota, based upon past records. If all dealers reach an average stipulated percentage of their quotas for the month and none falls below a stipulated minimum the salesman receives a higher percentage of commission upon the sales made by himself. If one dealer falls below the stipulated minimum, or all dealers fall below the aforementioned mark, the salesman receives a lessened scale of commission upon the sales which he has made. The plan has apparent complications, particularly for larger communities, but some beneficial experience may be gained from it. Under the plan the salesman has a personal interest in helping those dealers which are in the plan; the dealer has only to provide a statement of his sales to be included; the salesman receives no commission unless he sells equipment himself; and he has no incentive to play favorites among the dealers for he cannot tell which one may fall below the mark and thus throw him into a lower commission class for the month."

Air Conditioning

MR. W. R. ZUHLKE, in his paper, "Air Conditioning—Home and Industry," brought out how air conditioning is playing an important part in such manufacturing companies as the Eastman Kodak Company to guarantee equal drying of films; in telephone cable manufacture to insure thoroughly dry cables and thereby improve transmission; in color printing, so that the paper does not shrink in a varying manner due to varying moisture content.

"Cooling," said Mr. Zuhlke, "as compared to heating is a relatively more expensive proposition and will demand greater consideration of the economics of each individual problem. This will be particularly important in southern climes where up to the present, scant stress has been placed upon the advisability of good tight construction. It is immediately apparent that the initial and operating expense of equipment to be used will depend directly upon the excellence of construction of the building to be cooled. Not only does this apply to the 600 hours of operation during the summer months but equally as well to the winter months. The main problem in air conditioning with which we are confronted today is the creation of proper equipment that may be sold at a price within reach of the average home owner."

Relative to the various methods for cooling air he said:

"There are numerous ways in which air cooling for comfort and health may be accomplished. Where lake or well water in sufficient quantity and of a sufficiently low temperature (55°) is available, the problem is relatively simple. Hot and humid air passing through a spray of such water will be subject to a reduction of both its sensible and latent heat content. In all instances where water is used in a similar manner its temperature must be below the dew point temperature of the air if dehumidification is desired.

"If, in a like manner, the temperature of the air is not reduced to or below its dew point, a sensible heat reduction but a moisture increase will have occurred. Where water of a temperature higher than the wet bulb temperature of the air is available, evaporative cooling may be resorted to. This procedure is limited to such localities where the difference between the wet and dry bulb temperature of the air is considerable or to such instances where it is possible to artificially maintain an adequate psychrometric difference. In instances where dehumidification is a necessity for comfort, the application of water sprays, of a temperature higher than the dew point of the air and yet below its wet bulb temperature, could only bring about an approach to the conditions desired.

"Water sprays through which air is passed may also be cooled by ice. This method is entirely feasible. The equipment costs involved will be considerably less than those of a mechanical refrigeration plant, and its future success will depend to a large extent upon the possibilities of cheaper ice production. The cost of ice today is greatly influenced by the desire to obtain clear cakes which, of course, would not be necessary in its application to air cooling. As a matter of fact, it may be possible that future developments will consider the application of mechanical refrigeration machines, operating at night on "off peak" current to provide the day's ice

supply, in an effort to reduce initial and operating expense. This method, of course, would offset the disadvantage of ice delivery."

"An interesting deviation from these methods is offered by the use of such materials as Silica Gel. In machines presently being offered by the Silica Gel Corporation for the air conditioning of homes, no refrigerants of any kind are used, thus the process is entirely safe. The air to be conditioned is passed through gel beds where part of its moisture is absorbed, causing a conversion of latent heat to sensible heat. Sensible heat cooling is then effected by passing the air through a heat exchanger through which water is circulated. In instances where the temperature of the available water is too high to permit a sufficient reduction of sensible heat, evaporative cooling may be resorted to inasmuch as it is possible to create a high psychrometric difference. After the adsorption cycle, the gel beds must be reactivated. The system is especially favorable for the maintenance of low relative humidities. For comfort cooling the advisability of low relative humidities and corresponding dry bulb temperatures has been and still is the subject of considerable difference of opinion. Personally, from a point of view of comfort, I see no reason why the maintenance of a low dry bulb temperature differential between indoors and outdoors with correspondingly lower relative humidities in the home should not be entirely practical.

"Other methods of cooling have already had the benefit of many years of development, whereas, Silica Gel and systems of a like nature are only comparatively recent offerings. Silica Gel systems offer many interesting possibilities but considerable research work remains yet to be done. In my estimation, it is important that Silica Gel, receive the immediate and wholehearted cooperation of the gas industry inasmuch as it represents one of the promising methods which will permit the industry to obtain their share of the year 'round air conditioning market."

Publicity and Advertising Section

A VARIED program was presented at the one meeting of this section. Chairman Hodge brought out some good points as to how matters are shaping up along the line of Association advertising and otherwise and Mr. Walter C. Beckjord gave a talk on what the industry should do to keep up advertising in competition with corresponding electric efforts. He spoke for coordinated and continuous efforts and showed that the gas industry is spending relatively much less money in newspaper advertising than that spent by the oil and coal industries. He cautioned against throwing mud at any competitors by way of advertising.

Mr. David F. Kahn outlined the progress to date relative to the proposed national advertising campaign and felt optimistic as to the ultimate carrying out of the plans.

Motion pictures were shown which dealt with the production and utilization of both natural and manufactured gases. A capacity audience was on hand for this meeting.

Jay Barnes,
Chairman-Elect, P. & A. Section

Notes from Chairman's Report

IN his report Mr. William H. Hodge, Chairman, spoke of the maintenance of gas advertising in volume as good or better than most large industries. He also advised against hasty retrenchment in advertising without considerable study and told of the curtailment of meetings of committees and a reduction in committee membership.

Mr. Hodge recommended the appointment of a "Co-operative Trade Relations Committee" for studying advertising methods. He called attention to plans for improvement and better co-ordination of the various advertising activities of the component parts of the association. In this connection he told of a survey and conference in the spring which evolved ways, without additional expenditure, for accomplishing the following desirable objects:

"1. The more complete utilization of the resources of advertising and publicity specialists composing the Publicity and Advertising Section;

"2. A further advance in coordinated effort at headquarters.

"Towards the first object we recommend that all publicity and advertising activities originating in other sections or association sources be formally submitted for review to the chairman, vice-chairman or Headquarters' representative of the Publicity and Advertising Section, before definite action is taken. In this way an opportunity is presented for uniformity in adhering to the policies and standards of the Association and at the same time securing the benefit of the critical and creative abilities of those most familiar with the advertising or publicity problems involved.

"Object No. 2 can be accomplished, we believe, by more closely identifying the work of the Director of Publicity and Advertising with that of the Section; in other words by making these functions responsible to the Section under the continued supervision of the Managing Director."

Some additional notes and recommendations from Mr. Hodge's report follow:

"The subject of combined national and local advertising in behalf of the gas industry and appliance manufacturers and distributors has received the attention of the managing committee at various times. Early in the year we placed at the disposal of the Manufacturers' Section the extensive studies relative to a national campaign which has been assembled by the Special Com-

mittee on National Advertising and its Plan Sub-Committee. We also appointed an Advisory Committee on National Advertising to act in such capacity if called upon by those immediately in charge of this activity should it be developed.

"Upon being informed of the general plan of the Manufacturers' Section for a joint national and local advertising campaign—which contemplated that all funds to be used in national advertising should be contributed by manufacturing and allied sources—the Managing Committee approved the plan as sound in principle, and reported its endorsement to the Executive Board.

"Your Managing Committee was instrumental in bringing about an exchange of views in connection with a certain type of sound pictures dealing with methods of cooking, which contained elements of unethical competitive sales and advertising methods. The objectionable features have been suppressed and the possibility of a costly and destructive warfare, leading nowhere but to mutual dissatisfaction, removed at least for the present.

"For some years this Section has made available at small cost a high grade monthly gas advertising art and copy service. At one time as many as 241 sets of this service were purchased regularly by member companies. With curtailment of operating expenses by the companies, the sale of this service has fallen gradually to 87 sets per month. It is sold at cost, without profit to the Association. Obviously it cannot be produced and continued if there is much further reduction in its support by member companies.

"Our Section has no desire to attempt to provide advertising material which the industry does not want. The art and copy service was instituted in an effort to enable companies to improve the quality of their advertising on one hand, and to enable them to save money on the other. Your chairman cannot help observing that in his opinion, considering the small cost, far more practical ends would be served by buying and utilizing this service, than in the endless discussion of grandiose schemes which seem to get nowhere, but which certainly do cost money in the time and traveling expenses devoted to them.

"Considerable attention has been given by your officers to the question of a gas industry exhibit at the Century of Progress Exposition in Chicago, which will open June 1, 1933, and continue 150 days. In our opinion it is highly important to the industry that it be adequately represented at this unique World's Fair. At present it appears probable that the industry will have a creditable exhibit in connection with the Home and Industrial Arts Group, utilizing 5,000 square feet of floor space, and with an overall cost of approximately $100,000. It is hoped that the members of this Section will urge their respective companies to participate in the underwriting of this fund.

"Our Section fully approved the industrial gas advertising program in the trade press, and learns with regret of its discontinuance."

Concentrating on the Kitchen

MR. KEITH CLEVENGER in his paper, "The Modern Automatic All-Gas Kitchen," drew attention to the competition gas is receiving and the need for holding and increasing the domestic load. As a solution he proposed a plan which would furnish the housewife an ensemble color scheme for the kitchen, a well designed kitchen, and a carefully worked out method for increasing the use of gas in the home. This plan, somewhat in full follows:

"The Modern Automatic All-Gas Kitchen merchandising and advertising plan, offers the following essentials to successful gas merchandising:

1. It offers a definite, continuing sales objective, aimed at the services which provide in excess of 75% of our sales revenue;
2. It effects economy of sales and advertising operation;
3. It contributes beauty and romance and color to gas merchandising;
4. It offers for the first time a form of sales competition which meets electricity on its own ground; and
5. It meets the modern housewife on a sales ground—"ensemble" buying—to which she has been educated and with which she is thoroughly familiar.

"The plan offers the following services to the gas companies that adopt and apply it to their merchandising problem:

1. A complete kitchen planning service, including architectural design and practical kitchen planning supervision for the period of a year.
2. Advertising—for the period of a year—including

A. A complete service of fifty-two (52) newspaper advertisements featuring presentation advertisements, reminder advertisements, and miscellaneous copy, all focusing the attention of the prospect upon the three major gas appliances which constitute the modern, automatic all-gas kitchen, i.e., the modern automatic gas range, the automatic gas water heater and the automatic gas refrigerator displayed at all times in the setting of a beautiful modern kitchen. In this advertising the utility may feature specific appliances, or all three, in any piece of copy, but always, the focal point is the Modern Automatic All-Gas Kitchen.

B. Direct-Mail Advertising—This consists of a wealth of effective mailing pieces and envelope enclosures in three- and four-color process, all featuring the Modern, Automatic All-Gas Kitchen, in a most attractive and alluring manner. Briefly these pieces consist of an announcement folder calling attention to the modern kitchen on the display floor of the utility and inviting all those interested to an ocular demonstration of what an automatic all-gas kitchen can be, as well as to lectures on the subject of modern kitchen planning. Another mailing piece sets forth in four-color process, the three modern automatic gas appliances, as well as several illustrations of modern automatic all-gas kitchens and explains how the housewife may proceed to secure the plans for her new all-gas kitchen through the local gas utility. Numerous other direct mail pieces (there is a total of nineteen) are designed to be sent out at proper intervals in the effort to further stimulate, not only the continuation, but the gradual enlargement of interest in the program.

C. Other forms of supplementary advertising, such as radio (transcription) programs, outdoor advertising and window displays will be supplied where desired.

3. Additional and Cooperative Services—In addition to the advertising material mentioned, this plan also provides the following services:

A. The designing, building and equipment of a model modern automatic all-gas kitchen on the display floor of each utility, layout and specifications for same to be submitted and approved by the utility.

B. The preparation and supervision of the details of the initial modern automatic all-gas kitchen show, which includes arranging the program, supplying a competent authority on kitchen planning to give talks and demonstrations as well as to supervise these activities and as-

sist the sales and home economics department of the utility.

C. Supplying a competent kitchen planner to address groups of women (at sales rooms, women's clubs, etc.) on matters pertaining to the modern, automatic all-gas kitchen as well as to make her available for field work in the homes in the territory served by the utility.

D. Supplying architect's floor plans and working blue prints with color sketches of front elevations from actual measurements of customer's kitchen over the period of the contract.

E. A series of sales and employees' educational meetings descriptive of this plan and its objectives and operation.

F. Supervising and providing publicity for newspapers and general magazines, enlistment of manufacturer and dealer co-operation by interesting them—manufacturers and dealers—in all types of kitchen equipment and appliances in addition to the gas appliances, which are featured in the modern kitchen in the idea of "ensemble" selling.

G. Counsel at all times on matters pertaining to advertising and merchandising, as well as layouts and suggestions on any special advertising or merchandising matter in connection with this program.

"In this connection one point must be recognized. This plan does not interfere with any particular activity, such as specific appliance sales, or any other phase of selling which may be peculiar to any individual property. The plan is not 'canned,' but is elastic and flexible enough to fit any existing condition which may be practical to consider."

Accounting Section

THE committee reports and papers presented at the two Accounting Sessions covered many important phases of utility accounting activity. Under the chairmanship of Mr. W. A. Doering the meetings were conducted with despatch, particularly when one realizes the extent of the program. Many of the committee reports are available at Association headquarters. The two, "Wrinkles" and "Mechanical Office Equipment", produced under the chairmanship of Mr. Herbert A. Ehrmann are especially replete with valuable information.

It is interesting to note that a reasonably complete exhibit of office equipment was on display during each day of the Convention.

J. M. Roberts,
Chairman-Elect, Acctg. Section

Collecting Delinquent Bills

THAT portion of the Committee Reports on Customers' Accounts, "An Effective Collection Procedure for Current Delinquent Bills," which was contributed by Mr. J. G. Waddick, is given below.

"Receiving Collection Statements—Collection statements are received daily with the exception of Saturday's, from the Customers' Accounts Department for all delinquent accounts of $1.04 and over. These statements are typewritten in four (4) copies using a fanfold form, seven days after the expiration of the net payment period. (See samples attached.)

Copy No. 1—Collector's copy.
Copy No. 2—Final notice.
Copy No. 3—Memorandum of past due bill.
Copy No. 4—Payment coupon.

"Separating and Classifying Collection Statements—Collection book and route clerks, working nights, classify and count the collection statements as follows:

A—One month bills less than $3.11.
B—One month bills, $3.11 and over.
C—Two month bills.
D—Three month bills.
E—Four month bills.

"After the collection statements are checked against the day's cash receipts, the collection book and route clerks separate the memorandum of past due bills and the payment coupons from the Copies No. 1 and No. 2 of the collection statements. Memorandum of past due bills and payment coupons for accounts of one month bills of less than $3.11 are mailed to the customers. Copies No. 1 and No. 2 are destroyed, in as much as a collection call is not made on this class of accounts.

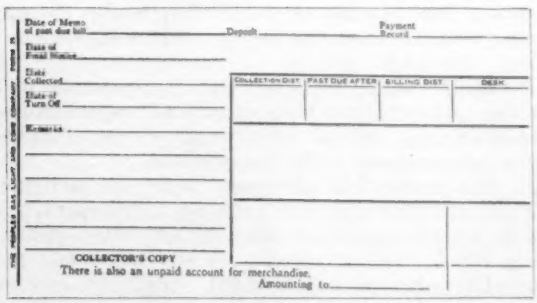
"Memorandum of past due bills and payment coupons for accounts of one month bills for more than $3.11 are mailed to the customers.

"Memorandum of past due bills and payment coupons for accounts two months or more are destroyed, providing, however, that the amount of the bill for the previous month is $1.04 or over.

"Copy No. 1, or the collector's working statement, and Copy No. 2, the final notice for one month bills for more than $3.11 and for all accounts of two months or more, are filed in unit, page and folio order in the collection working file by the collection book and route clerks. The cash receipts are checked daily and those remaining in the file after four days are removed and prepared for street work.

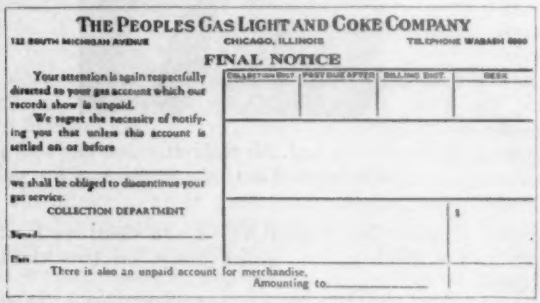
"Preparing Collection Statements for the Collector's Attention—The regular bill review clerks prepare a schedule of the work for the route clerk to be routed to collectors. The route clerk removes the collectors working statements from the file, counts the number of statements routed to each collector and enters the name with the number of collection statements on a collector's work sheet. They then prepare a separate list of collection statements in the order in which collector should make his calls and return them to the regular bill review clerks together with the collector's statements. The regular bill review clerks then distribute the collection statements to the collectors in their respective districts. The lists are turned over to the field supervisors so that they can pick up during the

day the collectors in the territory assigned to them.



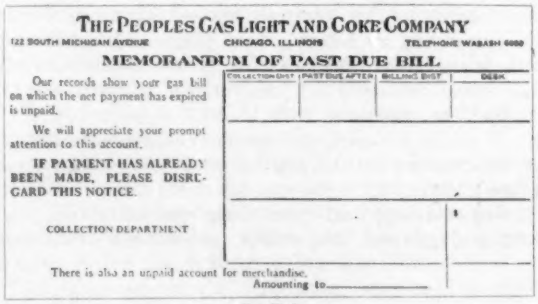
Copy No. 1

"Duties of the Field Supervisor—The duties of the field supervisor are to instruct the collectors in the method of handling difficult collections, observe their manner of approach, appearance and offer constructive criticism when necessary. This work has been helpful to the collectors and beneficial to the company in our relations with the public. Field supervisors report to the supervisor of regular bill collectors the number of men checked daily and their observation of the collectors' activity. Field supervision of collectors in our opinion has also had the most satisfactory results toward increasing the number of collections and obtaining a better class of work.


THE PEOPLES GAS LIGHT AND COKE COMPANY
122 SOUTH MICHIGAN AVENUE
CHICAGO, ILLINOIS
TELEPHONE WABASH 6060
FINAL NOTICE
Your attention is again respectfully directed to your gas account which our records show is unpaid.
We regret the necessity of notifying you that unless this account is settled on or before
we shall be obliged to discontinue your gas service.
COLLECTION DEPARTMENT
Signed
Date
COLLECTION DIST.
PAST DUE AFTER
BILLING DIST.
DESK
There is also an unpaid account for merchandise.
Amounting to

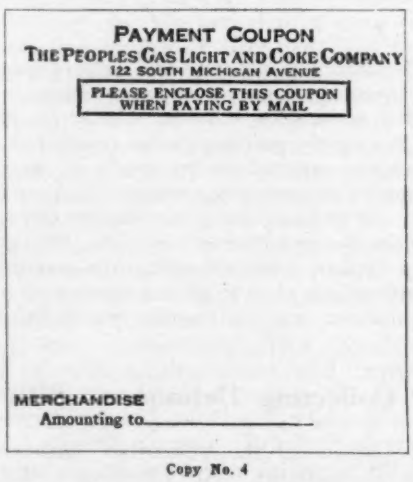
Copy No. 2

"Reporting for Work—Regular bill collectors report for work as directed, at one of our branch offices or at the main office, in time to secure their book of collection statements, necessary forms, meter locks and be enroute to their first call not later than 8:30 a.m. The collectors shall make every effort to collect all unpaid bills and in the event it is impossible to make the collection, leave the final notice, which allows the customer five (5) days in which to pay the bill.


THE PEOPLES GAS LIGHT AND COKE COMPANY
122 SOUTH MICHIGAN AVENUE
CHICAGO, ILLINOIS
TELEPHONE WABASH 6060
MEMORANDUM OF PAST DUE BILL
Our records show your gas bill on which the net payment has expired is unpaid.
We will appreciate your prompt attention to this account.
IF PAYMENT HAS ALREADY BEEN MADE, PLEASE DISREGARD THIS NOTICE.
COLLECTION DEPARTMENT
COLLECTION DIST.
PAST DUE AFTER
BILLING DIST.
DESK
There is also an unpaid account for merchandise.
Amounting to

Copy No. 3

"Noting Promises of Payment by Customer—On the left margin of the collector's copy of the collection statement, there are several blank spaces which the collectors fill in to indicate the results of their calls. All promises made by the customer regarding the payment of an account should be carefully noted on the collector's copy. If the collector is unable to secure a pay-


PAYMENT COUPON
THE PEOPLES GAS LIGHT AND COKE COMPANY
122 SOUTH MICHIGAN AVENUE
PLEASE ENCLOSE THIS COUPON WHEN PAYING BY MAIL
MERCHANDISE
Amounting to

Copy No. 4

SUMMARY OF THE DISPOSITION OF COLLECTION STATEMENT OF ONE OR MORE ITEM BILLS OVER $3.11

A summary of the disposition of collection statements for accounts of one month bills over $3.11 and for all two months or more accounts together with a statement of the periodical check made of one months bills less than $3.11

Month	Number of Sheets Received		Number Found Paid 1st Night		Number Paid on Memo		Number Collected on First Call		Number Paid on Final Notices		Number Paid or Collected Before Receiving New District		Total Disposed of Paid or Collected		Number Not Disposed of When New District Is Received	
	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number
September, 1931	.523	74,227	050	3,694	.139	10,296	.174	12,900	.162	12,017	.340	25,237	.864	64,144	.136	10,083
October, 1931	.529	76,136	050	3,776	.144	10,960	.163	12,389	.202	15,378	.308	23,438	.866	65,941	.134	10,195
November, 1931	.550	81,669	.050	4,102	.149	12,202	.156	12,779	.193	15,773	.303	24,652	.851	69,508	.149	12,161
December, 1931	.552	83,686	.045	3,769	.135	11,279	.151	12,620	.188	15,726	.305	25,545	.824	68,939	.176	14,747
January, 1932	.586	95,903	.047	4,524	.133	12,724	.138	13,236	.181	17,380	.297	28,479	.796	76,343	.204	19,560
February, 1932	.575	90,816	.043	3,901	.131	11,926	.133	12,063	.191	17,360	.260	23,633	.758	68,883	.242	21,933
March, 1932	.588	92,110	.042	3,861	.140	12,934	.133	12,294	.182	16,749	.260	23,896	.757	69,734	.243	22,376

SUMMARY OF COLLECTION STATEMENTS NOT DISPOSED OF WHEN NEW DISTRICT IS RECEIVED

Month	Vacant and Successions		Credit Extensions		L. O. C. D.'s		Number Not Disposed of	
	%	Number	%	Number	%	Number	%	Number
September, 1931	.015	1,104	.069	5,190	.028	2,047	.024	1,742
October, 1931	.015	1,148	.065	4,974	.030	2,268	.024	1,805
November, 1931	.013	1,099	.073	5,938	.034	2,734	.029	2,390
December, 1931	.013	1,087	.092	7,665	.035	2,934	.036	3,061
January, 1932	.012	1,116	.111	10,444	.038	3,677	.043	4,107
February, 1932	.015	1,317	.137	12,469	.038	3,478	.052	4,669
March, 1932	.014	1,333	.127	11,660	.044	4,085	.058	5,298

ment or a promise he will note upon the collector's copy the circumstances surrounding each individual case, such as 'Party Refuses to Pay,' 'Not at Home,' 'Out of Work,' etc. All such cases, which require special attention will be called to the attention of the regular bill review clerks or the field supervisors by the collectors when turning in their collection statements at the close of the day.

"Discontinuing Customers' Service—If the account remains unpaid after the expiration of the final notice, collection statements will be removed from the collectors' working files by the collection book and route clerks. Collection statements are again routed for the attention of the collectors.

"A collector will call on a customer and if he is unable to collect the delinquent bill, he will, after giving consideration to the location and the customer's payment record, and in his judgment the account warrants sure action, proceed to discontinue the gas service."

Home Service Meeting

THIS meeting was largely a luncheon gathering but even so, was productive of much worth while discussion and several papers and talks of value. Incidentally, at the Publicity and Advertising and the Commercial sessions several papers were presented of particular moment to Home Service people. Accordingly, these latter meetings were well attended by those from the various Home Service Departments of a number of companies.

Miss Hulda Ungericht, Chairman, led in the two-minute talks given by a number of Home Service Directors, the subjects covering many important aspects of Home Service work. These included "Individual Cookery Classes," "Home Call Survey Work," "Laundry Demonstrations," "New Floor Kitchens," "Classes for Salesmen," "Range Contests," "Trade Dealer Contacts," and "School Contacts."

1932 Home Service Committee

Assisting in Sales

ALTHOUGH the paper, "Home Service as a Sales Ally," was read by Mr. Hugh H. Cuthrell before the Commercial Section it is felt that it should be included here. Accordingly, some of the salient features of the same follow:

"Home Service workers make the customer familiar with the gas equipment and its operation through demonstrations, lectures and personal contacts.

"Home Service aids the customers in developing the technique of housewifery so that they may

1. Know how to prepare and cook meals; clean house, launder, and take care of children correctly
2. Obtain sufficient practice so that these tasks become easy
3. Become familiar with the benefits of comfort and convenience resulting from full use of modern gas-burning appliances.

"Home Service also inculcates an appreciation of modern gas equipment, an intelligent understanding of its use and a feeling of security concerning gas service. To carry out this work it is essential that the efforts of the Home Service staff be directed toward those appliances which the company wishes stressed. It is true that this attack cannot always be direct, but it may be made through an appliance with which the customer is familiar.

"It is primarily through ranges that Home Service obtains its legitimate entry into the customer's home. When a woman purchases a new range, she is willing to accept advice, properly given, on its operation and automatic features. There it is that Home Service can enter and so solidify the relations between the customer and the utility that a future entry for selling refrigerators, water heaters and other appliances is provided. Through this first appearance and the service given, the Home Service worker can sell herself and her company to the customer. Thus she builds up the load indirectly by developing this customer into being a prospect for other automatic gas appliances.

"Home Service Departments have now as never before an opportunity to show women new ideas in homemaking because of the renewed interest on the part of women in economy and thrift. By use of modern gas ranges and refrigeration, many of the operations that have been drifting away from the home can be performed there with practical economy.

"The newest gas ranges, with their insulated ovens and automatic heat controls, may actually reduce the amount of gas used in various baking processes. However, at the same time the ease of operation and the greater certainty of successful results mean that the range will be used more often; and if it does not assure an added load, it at least maintains a load that might otherwise be lost. Also there is the opportunity for Home Service workers to stress the advantages of the modern, automatic gas range to apartment house dwellers. Through proper handling of the situation

(*Continued on page 48*)

AMERICAN GAS MERCHANDISING ALMANACK

December

1932

DECEMBER, having dissipated the cry, "things will not change much until after the election," should find the merchandising man in a mood to get into action.

December will bring the desire to buy. Why not suggest sensible buying? Display and advertise the new gas range, the modern space heaters and customer-controlled gas hot water service—not as gifts but as needs. Play upon vanity and you'll find your cash register will capture large size bills that have been buried.

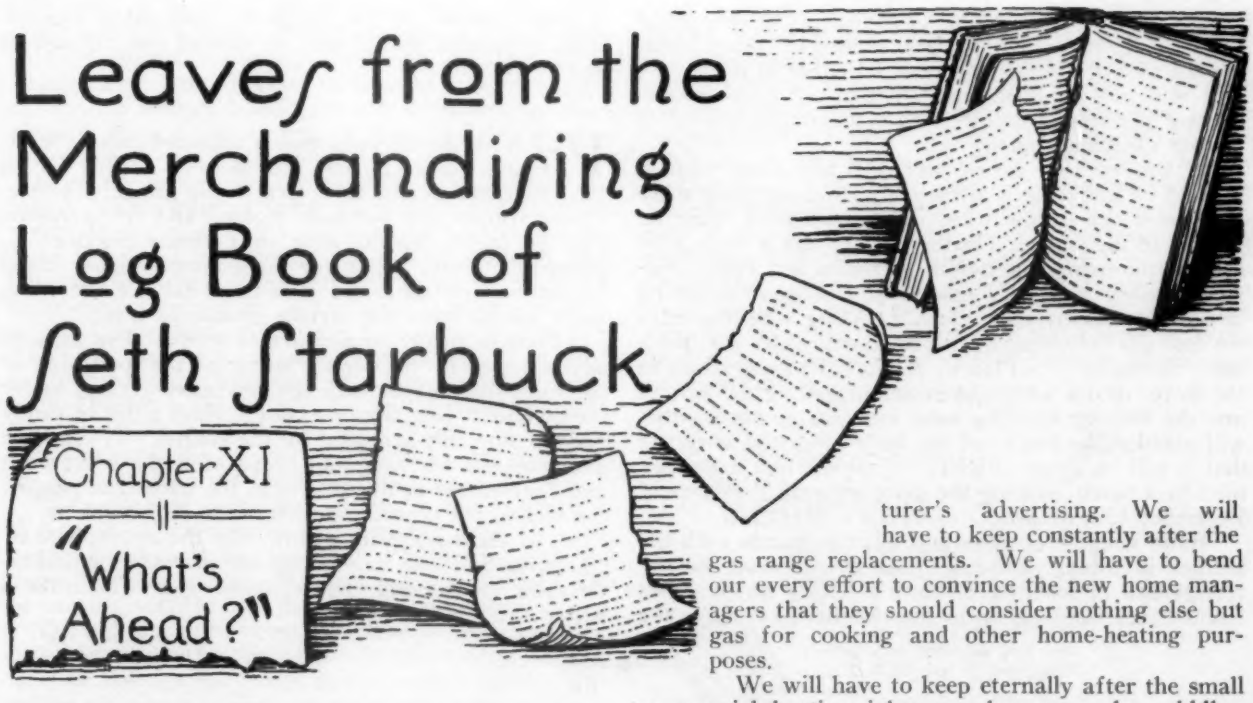
December is a buyer's month and while we think there is a lot of "hokum" to "buying mother a device to work over" we do think that home labor saving appliances can be sold during December on the basis of value and a probable increase in price, if they are properly displayed and people are approached to buy on this basis.

December affords the display man poinsettias, holly, mistletoe, the fir and cedar; reds and greens to enliven his window display advertising. December also brings Santa Claus, the turkey. Put season into your selling helps; use plenty of light. Spots and flashers as well as colored flood light should be used without stint, and mobile color where possible. Secure and distribute recipes and folders illustrating the new appliances and conduct store demonstrations daily—give folks IDEAS that will cause them to use your appliances and build up your sales per meter.

December should find the gas man working to dispose of all 1932 stocks—pricing his wares to move them before inventory time when he always takes a mark-down on shelf warmers.

1—Thur.	**Everything ready for the Christmas shopper.** Anniversary of the gas light; born Baltimore, 1816, 116 years ago. W. E. Steinwedell, P. Plantinga, Arthur M. Smith, Frederic C. Howe and Walter Lucas filed formal notice of the incorporation of the Gas Machinery Company, with headquarters and shops in Cleveland, Ohio, 1902. C. A. Schlegel was appointed manager of the Northern Indiana Gas & Elec. Co., South Bend, Ind., 1917.
2—Fri.	Monroe Doctrine proposed in message to Congress 1828.
3—Sat.	Illinois has been a state since 1818, 114 years.
4—Sun.	Second Sunday in Advent.
5—Mon.	**Now to get all your merchandise out where shoppers may see it.** Martin Van Buren, President, born, 1782.
6—Tues.	**Go over plans and material for window and special store displays.** Lincoln's last message to Congress, 1864. The Gas Employees' Association of the Pittsfield (Mass.) Coal Gas Company held meeting in gas office building. Jesse R. Stetser of Welsbach Company gave illustrated talk on a trip through his company's plant in Gloucester, N. J., 1917.
7—Wed.	Great Montana blizzard, 1927. **Go over your newspaper advertising be sure that it stresses Newness and VALUE. Forget "cut-price" hysteria.**
8—Thur.	Ecuador broke with Germany, 1927.
9—Fri.	Merideth Nicholson, author, born, 1866.
10—Sat.	**Install window displays, set up store displays.** Peace treaty with Spain, 1898.
11—Sun.	Indiana becomes a state, 1816.
12—Mon.	**Run advertisement in newspaper.**
13—Tues.	**Conduct store demonstration.**
14—Wed.	George Washington died, 1799.
15—Thur.	**Run newspaper advertisement on food page.**
16—Fri.	Beethoven, composer, born 1770. **Check over newspaper advertisements for Sunday's newspapers.**
17—Sat.	Alexander Agassiz, naturalist, born, 1835. **Change window displays tonight.**
18—Sun.	Prohibition amendment in Congress, 1917.
19—Mon.	**Conduct store demonstration; check over sales by units and rearrange floor displays.**
20—Tues.	Savannah, Georgia, captured, 1864.
21—Wed.	Winter begins. **Run advertisement in newspapers.**
22—Thur.	E. A. Robinson, poet, born, 1869. **Conduct store demonstration; redecorate windows and run newspaper advertisement saying, "only two more days to secure these outstanding values before Christmas."** The Lone Star Gas Company, Ft. Worth, Texas, declared a regular quarterly dividend of 2%, payable December 30 to stock of record, 1917.
23—Fri.	**Conduct store demonstration and exert extra effort to make store sales.**
24—Sat.	**The wind up—get all the sales you can; knock off early.**
25—Sun.	Christmas Day. May your Christmas be a happy one!
26—Mon.	**Good day to check up on what December brought you in the way of sales and to give a thought to 1933.**
27—Tues.	**Take down Christmas displays; install New Year windows and rearrange store displays.** Doctor Pasteur, biological chemist, born, 1822.
28—Wed.	**If you have planned an inventory sale run announcements in daily newspapers.**
29—Thur.	Andrew Johnson, president, born, 1808.
30—Fri.	**Go over final details for January activity.**
31—Sat.	**Build displays for January activity; rearrange stocks in store—already to open up with a bang on Monday.**

Leaves from the Merchandising Log Book of Seth Starbuck



THE price of diamonds goes up"; "Pearls to soar in price"; "Chickens as pay for telephone tolls"; Stewart Chase writes a new book "A New Deal"; "The forgotten man is forgotten"; "Americans are inarticulate (it is to laugh)"; "Mr. Blank advocates the five day week and the six hour day to spread employment"; "America in need of 300,000 small homes per year, for men whose incomes are around $2,500 per year"; "Plans for ready-cut steel homes being perfected"; these are a few headlines which answer in part the question of "What's Ahead?"

What's ahead depends entirely upon how we face the future. Refer to the need of 300,000 homes per year. What a potential market for the gas man, those hundred thousand ready-cut steel constructed homes for men whose annual incomes are around $2,500! What a market for effortless gas fuel!

Here we can picture an alcove for a 1933 model gas range in the pantry-cooking-nook; another for the gas refrigerator in the kitchen-breakfast-room. In the basement we can vision an automatic gas furnace, and a customer-controlled automatic gas storage water heater; a small laundry stove, a dryer, and a gas heater press-ironer. We see one of those new sanitary gas-fired incinerators beside the furnace. In the living room we see a radiant gas-coal or wood-fire heater, with another in the library or den. We can see a wall heater in the bathroom for use during seasonal changes. When we go into the garage we can see a garage heater and on the sun porch we find gas-steam radiators. What a market; and it is the market we see right now, just as soon as those homes are built. Another market we can see in the not-so-distant future is the gas air-conditioned home.

WHAT is ahead depends entirely upon what we as individual gas men put into our efforts to popularize gas fuel in the home and in industry. But we will have to put a lot of push and pep as well as plenty of persuasion into our selling activities. We will have to get advertising, and sales promotion back on a seven-day week and an eighteen-hour day at a regular rate. We will have to follow up the efforts of the manufacturer's advertising. We will have to keep constantly after the gas range replacements. We will have to bend our every effort to convince the new home managers that they should consider nothing else but gas for cooking and other home-heating purposes.

We will have to keep eternally after the small commercial heating jobs—urn burners, cake griddles, broilers, boilers, toasters and waffle irons in grills, cafes and restaurants. We will need to seek out the market for heavy-duty ranges, ovens, water heaters, and other equipment necessary in large hotels and institution kitchens. We must strive to maintain the heating load we have used and are still using in the fabrication of all products from towels to tires for locomotives.

BECAUSE of the widespread use of natural gas transmission and distribution, we have developed this business in a big way and have held and increased it in many instances. However, you who have read the trade papers of any field must know that the manufacturers of electrical heating equipment have come to realize the full value of these midget heating jobs and they are now going after them quietly, but none the less earnestly and with a vengeance. Gas Men, unless you want to lose this load, watch it and develop it!

There are any number of manufacturers who can supply you with facts and figures on the potentialities of this market. They can supply you with efficient high-speed burners for any heating or heat-treating problem you may bump into. As we view the commercial and industrial field, it is a very large one. It is a real job for the man with engineering training and experience. Too, it is a job for the fellow with a "nose for new ways," because we venture to assert that fully 80% of the heating jobs encountered will call for special "built-up" installations.

And now for a few notes we find in the log-book with reference to December.

WE never get very much "het up" about the idea of "giving mother a gas range for Christmas". In talking to a number of mothers, on this subject, we find that this idea is just about as popular as a mess of chiggers, if you know what I mean. Mother reasons that she can get a gas range any time. To her the range is synonymous with hard work. No matter how much she may enjoy cooking, stored back in her subconscious mind is the association of the range and labor even though she is the proud owner of one of the super-gas

ranges of today. When Christmas gifts are being dished out, she much prefers some "jim-crack" that carries with it a bit of sentiment. Be that as it may, we find that our log-book suggests that we plan on decorating our store windows in a manner that will carry on the Christmas spirit.

We suggest that we go over each and every item in our stocks and price it attractively; that we bring these appliances out of the ware rooms and place them on display in the store. The log says "Stage a store-wide saving sale during the month of December, 1932. Advertise many new 1932 models at a substantial saving in order not to inventory them." Along with this entry we find the following additional notes under the heading, "December". "Plan to conduct demonstrations in the store: devise ways and means of getting the kiddies into the store by securing some inexpensive novelty that will gladden the hearts of the little folks and advertise that it will be given "FREE" to all children accompanied by a parent visiting the store between the dates of December 15th to 24th.

"Build window displays and advertisements with the kiddies in mind. Place the gas stove, water heater, refrigerator or what-have-you in a setting which shows Santa Claus skipping up to the chimney; or, make the setting symbolic of the season in some other manner. This same idea should also be carried out throughout the entire store."

PLAN all the demonstrations with the idea of interesting women in new recipes to be cooked on the gas range and chilled or frozen in the gas refrigerator. Candy recipes call for both cooking and refrigeration, but—go into a huddle with your Home Service Department. Build a plan for the demonstrations. Send invitations to citizens and clubs to attend in a body. Set aside special days for certain groups to meet.

Advertise attractive menus and recipes in newspaper advertisements. Supply the editor of the food page of the local daily paper with kitchen-tested recipes under the by-line of your demonstrator. Have a day of candy making especially arranged for the kiddies. If you have corn poppers for sale, pop heaps of fluffy white corn and distribute it to the kiddies at the same time passing the recipes for popcorn goodies on to their mothers.

All of these activities will breathe the atmosphere of Christmas and help to build up and increase the domestic sales of gas and—hence, make your Christmas a happy one.

Effective Advertising Appeals

Analyzed by The Copy Writer

No.6 - "Stairs and Steps"

"BOOTS, boots, marching up and down again"—"Tracks, tracks, from attic to basement"—there's no discharge in the war against dirt and drudgery that goes on daily in thousands of homes in every sizeable community. The steps taken by the leg-weary homemaker in the average household, when stretched end to end in the way of statisticians, would reach from coast to coast several times during an ordinary lifetime. Steps and stairs, these are the nightmares that most women dream—else why the popularity of the modern bungalow and elevator apartment?

The smart advertiser takes advantage of such a situation to emphasize the automatic features of the new gas appliances, which make stair climbing and cross-kitchen hiking merely occasional relaxations instead of the regular routine of keeping house. Telephone companies have used this appeal widely and effectively in promoting the use of extension outlets. Until the depression set in at least, they had been so successful as to seriously threaten the existence of the shoe repair industry. A step in time saved "ni-yun", and sometimes prevented the muffins from burning. Some gas companies go so far as to show telephone extensions in their model kitchens, but overlook this valuable appeal of step-saving in their appliance advertising.

For here is an argument which can be applied to the selling of virtually every gas appliance that is offered for domestic use—ranges, water heaters, refrigerators, and house heating equipment. It is a symbol of the basic idea that gas service does the really big, heavy jobs around the home, an idea that can be dramatized by means of the countless wasted steps that are recognized and understood only too well by every homemaker who reads your advertising copy.

A footprint and a staircase—the thought lends itself most happily to illustration and lay-out. One particularly interesting treatment that we have seen—it happens to have been an electric advertisement—shows a serpentine staircase winding up to infinity. The appropriate caption reads, "Upstairs Is a Long Way!" Following the suggestion of the telephone company, it recommends the purchase of a vacuum cleaner for every floor. A similar treatment was adapted to a house-heating message, in which the hypothetical staircase up and down which the housewife trudges on her daily tasks was described as "The Longest Stairway in the World."

In some cases the staircase is typified as the barrier that stands between the householder and his enjoyment of hot water and other forms of comfort requiring a certain amount of stair-climbing when automatic equipment is not available. What this barrier means in spe-

cific terms is stated in one of those "believe-it-or-not" descriptions in which it is estimated that the tending of an old-fashioned water heater requires the climbing of 18,250 feet of stairs a year, equal to 33 times the height of the Washington Monument! "Which Is Your Home?" the copy asks—that of the well-worn steps or the responsive hot water faucet?

Even the comic strip artists have made use of the theme. We remember one Sunday supplement in which it was shown that, if a hand-operated heater does not make the water hot enough for a quick bath, at least it heats the bather during his frequent trips from the bathroom to the cellar. When more than one member of the family want to use the hot water—mother for the dishes, father for a shave, and brother and sister for their pre-party tub—then it's "Low Bridge! Everybody Down" with the old heater working overtime. One advertiser takes liberties with Webster by defining as a "Stumble Bug" one who stumbles up and down the stairs to keep the home fires burning.

The power of contrast is strong in this connection. We speak of brides "tripping down the aisle" in June; but must she, as a consequence, take her trips next fall down the cellar stairs? Must every trip to the bathroom or sink be preceded by a detour to the basement?

The old-fashioned home is a place of immense activity—one minute upstairs, the next downstairs, particularly on laundry day. But in the modern home, "This heater stays here to give you extra help with the wash". The cellar steps are the "stairs that lead to nowhere", while the steps that lead to renewed youth are those that bring the wise homemaker to the door of the Gas Company's water heating department.

A little humor will often add the necessary punch to advertising of this type. One advertisement slyly asks, "Do you run on the household track team?" The sports analogy is quite apt, for "A Mountaineer May Not Care" how steep a flight of stairs may be, but to the housewife the sporting element has long since given way to something far more serious. "The Greeks Had a Word for It" another copy writer suggests, but the woman translates it politely as a "nuisance". Around Thanksgiving she discovers why they called it "the Turkey Trot". Like the squirrel in a cage, it means "lots of work but getting nowhere". "Are You Walking a Treadmill?" becomes an apt headline in this connection.

Up-stairs, down-stairs, "all over the house", think of the tremendous energy expended during the year, we tell the prospective customer, especially as compared with the slight effort involved now in purchasing a few automatic gas appliances that will solve your household pedestrian problem for all time to come! "Are You Going to Make Those 450 Trips Downstairs Again This Winter!" This figure is conservative. One company puts it at "700 Times a Year", each trip consuming 10 minutes—that is 7000 minutes or 117 hours a season; and most people value their time at least at one dollar an hour—so figure it out for yourself.

The appeal can be made equally effective for both sexes. The modern gas range that "takes the walking out of cooking" has, for the woman who does her own housework, a message that makes her an immediate prospect, if you can only show her how to purchase the appliance on an attractive budget plan. Urge her to "Take Steps to Save Steps in Your Kitchen"—fewer steps for housework, more for the pleasant things of life. Many of those clever gas range and gas refrigerator combinations have been sold by the thought that there is "Not One Step from Food Chamber to Frying Pan."

As for dad—"Dad May Be Down, But He's Seldom Out!" Down in the cellar shaking out the ashes, he has little time to enjoy the comforts of home which can be pictured so enticingly against the background of a gas-heated home. Since we are all working today under pressure of some kind or another, there is decided timeliness in the exhortation, "When You're Tired—go up to bed, not down to a furnace!" Most men of adult age remember something of army life during the war, even if they did not actually serve at the front. From getting up early in the morning to "fix the furnace", to the last chores of the day before retiring, one is easily reminded of "k.p." "Tramp, Tramp, Tramp, the Boys are Marching"—not over the top, but down to the basement. Automatic gas service becomes as welcome as the armistice.

Believe It
Or Not!
To tend an old-fashioned water heater you must climb 18,250 feet of stairs yearly.
DOWN steps, up steps.... then down and up again.... first to light your water heater, then to turn it off. Altogether you must climb steps equal to 33 times the height of Washington Monument in the course of a year. · And just to tend a water heater! For a few cents a day, a GAS storage heater would save you these tiring trips. Month in and month out, without attention, it would keep an abundant supply of HOT water always ready to help you with the housework. Investigate today at our flore or at any dealer's.
GAS
Associated Gas and Electric System

Many water heating advertisements have made use of the "tea kettle" theme, which is appropriate for situations where both the man and woman of the house have had to chase up and down stairs to supplement an inadequate hot water supply at the kitchen stove. A man in pyjamas and bathrobe hot-footing it to the bathroom with a steaming kettle in his hand makes a striking picture that is not too far-fetched, yet possesses plenty of action. The headline, of course: "Is This Your Kind of 'Running' Hot Water?" or "Is This What 'Running Hot Water' Means in Your Home?" No more of this when an automatic gas heater supplies the heat and the faucet does the running for the entire household.

"Stairs and Steps" is a time-tested appeal that can be made to help your appliance sales climb to meet the demands of the public for greater comfort and convenience right where it will be particularly appreciated.

In keeping with indications of improvement in other lines of business the gas industry also shows encouraging signs of a slow but definite trend toward betterment. Below are given some reports by gas companies from widespread sections of the country which should cause all others to take hope and ply their efforts to stimulate business with redoubled energy. The information and data are as of September 1st.—Editor.

Dominion Natural Gas Company, Ltd., Buffalo, N. Y. Serving 30,735 customers.

We find that our gas sales for industrial purposes have increased in some territories. In Niagara Falls, New York, we find a very substantial increase in industrial gas sales over July. In our Natural Gas division as yet we have not noticed any increase in our gas sales, nor have we noticed any increase in our merchandise sales.

In all our properties we find that the sentiment is very much changed and every one is looking for an immediate return to prosperity.

The Peoples Gas Light and Coke Company, Chicago, Ill. Serving 904,279 customers.

The latter part of August our appliance merchandising division delivered 104 Electrolux refrigerators to a large Chicago apartment building, and the sales of Electrolux to apartment managers and owners has shown a definite improvement during the past few months. The order referred to above is by far the largest of its kind during the year—by any refrigerator dealer.

Metropolitan Utilities District, Omaha, Neb. Serving 50,892 customers.

We are very much encouraged at the general outlook, particularly with our gas supply.

For the month of July, 1931 and 1932, the figures on gas sales were as follows: July, 1931—133,841,100 cu. ft.; July, 1932—146,129,500 cu. ft.

For the seven months ending July 31, 1931 and 1932, the figures on gas sales were as follows: 1931—1,202,823,500 cu. ft.; 1932—1,334,924,100 cu. ft.—an increase for 7 months of 132,100,600 cu. ft. At an average price of 75 cents per M cu. ft., this represents an increase in revenue of $99,000 for the seven months.

The following are some comparative figures for the seven months ending July 31, of appliances sold:

	1931	1932
Ranges	392	246
Refrigerators	34	57
Furnaces	32	25
Room Heaters	32	41
Automatic Water Heaters	203	273

The number of sales of appliances, while not materially greater, are very satisfactory under present conditions, and the increase in gas sales generally is extremely encouraging.

There were 309 more gas meters or active accounts on August 1st than there were January 1st, 1932.

The Harrisburg Gas Company, Harrisburg, Pa. Serving 31,734 customers.

Unquestionably, people and businesses are feeling better, but little is evidenced through increased sales. Our gas sales for the first seven months of 1932 show an increase of three tenths of one per cent compared with the same period of 1931, and the year 1931 showed the highest gas sales in our history coming to us through increased sales per customer, as there has been no territorial growth recently. August, 1932 will probably show about a one per cent increase in gas sales as compared with a year ago, and we contemplate that 1932 will end as favorably as 1931.

The St. Louis County Gas Company, Webster Groves, Mo. Serving 38,510 customers.

This company has just finished converting the appliances to burn 800 Btu. mixed manufactured and natural gas instead of 570 Btu. carburetted water gas. In making this change rates for general and house-heating service were reduced, the larger reduction, however, being for house-heating, where the reduction amounted to approximately 35 per cent.

The company has been making a drive to obtain house-heating business, having ten men engaged in selling this class of service. In July, 41 contracts were obtained and for the first 23 days in August, 50 new contracts were obtained. It is expected that by the end of August more than 70 new customers will have been added for this month and that during September and October at least 100 new customers per month will be obtained. Of the 50 customers obtained during the first 23 days of August, 37 comprise conversion burner installation, while 13 call for gas designed boilers and furnaces. This drive of the gas company has been carried on in full cooperation with equipment dealers and heating contractors who are participating in the new business that is being secured. Of the 37 conversion burner jobs sold the first 23 days of August, 28 of these were sold by dealers and contractors, while all of the gas-fired boilers and furnaces were sold by outside agencies, the gas company not selling equipment other than conversion burners.

(Continued on page 46)

3 miles of cast iron pipe with
MECHANICAL JOINTS
for high pressure supply line

AN interesting installation of cast iron pipe for a high-pressure (75 pounds) natural gas supply line running through marshy territory with a high water level at certain times of year.

Three miles of 18-inch cast iron pipe with *mechanical joints* was installed with dispatch and comparative ease.

The joints used are based on the "stuffing-box" principle employing rubber gaskets with follower rings. This principle is embodied in several designs of mechanical joints made by members of The Cast Iron Pipe Research Association. In field tests, and in actual service under medium and high pressures, it has been conclusively demonstrated that these joints are *gas-tight*.

For further information write to The Cast Iron Pipe Research Association, Thomas F. Wolfe, Research Engineer, 309 Peoples Gas Building, Chicago, Ill.

CAST IRON

Look for the "Q-check" symbol as shown above. It is the registered trademark of The Cast Iron Pipe Research Association.

© 1932 The Cast Iron Pipe Research Association

CAST IRON PIPE

The Pendulum Starts Its Backward Swing

(*Continued from page 44*)

Prior to the introduction of mixed gas at reduced rates the company had 781 customers using gas in central heating plants. This represented about the highest saturation of any gas company in the country distributing manufactured gas. At the start of the coming heating season the company will have added to this number several hundred new customers. This activity has afforded an opportunity to contractors and dealers in heating equipment to obtain business during a time when building activity has practically ceased.

Philadelphia Electric Company, Philadelphia, Pa. Serving 155,161 customers.

Despite the entire loss of several fair-sized customers, the industrial gas (and commercial) consumption for the entire Philadelphia Electric system has shown a steady decrease in loss over the gas used last year. These comparisons are: January, 1932 was 20.8 per cent below 1931; July, 1932 was 6.0 per cent below 1931.

Considering only our Delaware Division, which is our major industrial center, this decreased amount of loss has been more pronounced: January, 1932 was 29.0 per cent below 1931; July, 1932 was 16.0 per cent above 1931.

Investigation of individual customers in the Delaware Division shows that there are eight of the basic industrial plants, whch for group have a consumption of 130.8 per cent in July above July, 1931. For this same group the consumption in July, 1932 shows an increase of 15.3 per cent over the previous month.

It may be a further indication of business conditions that the new uses of industrial gas contracted for during the first seven months of this year shows an increase of 5.26 per cent in consumption and 12.49 per cent in revenue above the same seven months last year.

Fall River Gas Works Company, Fall River, Mass. Serving 27,889 customers.

August sales of gas, though somewhat improved over previous months, are still under last year. For the four weeks ending August 27, 1932 our gas send-out is 2.68 per cent under the send-out for the corresponding period last year. For the year to August 27th the send-out is 4.83 per cent under last year.

The major industry in our territory is the manufacture and finishing of cotton fabrics. Locally, there are definite signs of increased activity among cotton mills as an increasing demand for manufactured goods becomes apparent. Mills which have been idle for several months have reopened in August, and others which have been operating on curtailed schedules have increased their operating schedules. This increased activity has increased our industrial sales of gas for singeing and calendering purposes, but the most important benefit lies in the improvement of employment conditions and the resultant increase in domestic gas sales.

In the past four weeks (August) increased activity of local cotton mills has provided employment for approximately 3000 mill workers, according to local newspaper reports. This improvement in local employment conditions has not been reflected as yet in increased appliance sales, though it will undoubtedly result in more buying in the near future if conditions continue to improve. There is a very noticeable improvement in local business sentiment and a reviving interest in gas appliances which we feel will be translated into merchandise sales as soon as full confidence is restored.

Battle Creek Gas Company, Battle Creek, Mich. Serving 12,176 customers.

Our industrial gas sales for the month of August, this year, are 5,100,000 cu. ft. greater than July, and result in an increase of 1,600,000 cu. ft. over August a year ago, and an increase of 1,300,000 cu. ft. over July a year ago. This increase in industrial business is largely due to increased activities of the food factories in our town.

Seattle Gas Company, Seattle, Wash. Serving 52,531 customers.

The first six months of 1932 show industrial and commercial MCF sales approximately the same as a like period of last year. Househeating MCF sales, including water heating, cooking and refrigeration, show an increase of 39.7 per cent for the first six months of this year over a like period of 1931. Merchandise sales of house-heating equipment show an increase of 17.6 per cent in the same period.

The month of August has increased 15 per cent over July in merchandise sales. Also, the collections seem to have been easier during August.

Pacific Gas and Electric Company, San Francisco, Cal. Serving 472,202 customers.

Our spring gas water heater campaign covering the period February 1 to June 30, 1932 called for a total quota covering company and dealer sales of 8,000 automatic gas water heaters divided into 3,000 for the company and 5,000 for the dealers. The accomplishments for the entire campaign period were, Pacific Gas and Electric Company, 2,630 heaters and dealers, 5,531, or a total accomplishment of 8,161 heaters against the 8,000 quota.

During this intensive drive for business the P. G. & E. Company sold approximately three times the number of water heaters that its sales forces sold during the entire year 1931. The dealer sales likewise increased for this period over the year 1931, however, not in the same proportion as company sales. The P. G. & E. sales were restricted exclusively to the replacement of other fuels or non-automatic water heaters, while the dealer sales included new buildings, replacement of automatics, as well as replacement of other fuels and non-automatic water heaters.

The second successful campaign was called the 1932 Summer Gas Load Building Campaign, covering the period July and August. The system quota on a revenue basis was $65,000 or $5,000 higher than the similar quota for the same campaign during 1931. The accomplishment for the 1932 campaign was $84,570 estimated annual revenue, an attainment of 130 per cent. This was an increase of $11,000 or 15 per cent over the 1931 accomplishment. These figures are based on P. G. & E. direct sales.

A very large new business activity that is being continuously prosecuted by our sales department since the introduction of natural gas is the gas heating conversion burner activity. In 1930, the first year after the introduction of natural gas, we sold 12,300 conversion burners out of a potential field of 40,000 (coal furnaces). In 1931 because of the diminution of the potential field, our sales were 9,800 and in the current year, because of the further diminution of the potential, our sales will probably total 7,000. We are at present a little behind the quota for the current year, but are speeding up our selling campaign for the balance of the year in order to make the quota, which we are very hopeful of doing.

Public Service Company of Colorado, Denver, Col. Serving 83,312 customers.

We have continued to maintain an effective New Business organization in spite of this serious business depression, and we believe we can justify this action by the very fact that our gas consumption and revenues for the first eight months of this year show nice increases over those of any previous year. Also we have had some very successful gas equipment sales campaigns during these strenuous months.

From June 1st to September 1st we conducted our annual summer gas-load building activity, specializing on the sale of automatic storage water heaters. This activity resulted in the sale of 362 of these units during this period. During the first eight months of 1932 our Denver gross revenues showed a good increase over the same period for 1931, and at no time thus far have we shown a downward trend in gross revenues in the Denver area. We are equipping many of our industries with gas during this period even though their operations are at a minimum, and we have every reason to look forward to some very remarkable consumption and increases in this type of business as soon as these industries resume operations.

Our gross revenue increases are largely the result of domestic sales. Institutions and schools, including building heating, also have been a major factor in these increased consumptions.

Utah Gas and Coke Company, Salt Lake City, Utah. Serving 14,980 customers.

Regarding sales for the month of August we outline below our apoliance sales in Salt Lake City, this August as compared with August, 1931:

	August 1931	August 1932
Boilers	0	1
Circulating Heaters	0	4

(*Continued on page 48*)

GAS COMPANIES *can* SAVE MONEY *by standardizing on* THIS PIPE

5 *outstanding points of superiority!*

1. ***Minimized corrosion—particularly pitting.*** Mill-scale is one of the principal causes of pitting. It is electronegative to the pipe metal and sets up galvanic action causing pitting around the scale areas; therefore, when scale is removed, longer life is obtained from the pipe.
2. ***Clean, smooth surfaces, inside and outside***—forming a better base for platings, galvanizing, or other protective coatings.
3. ***Full delivery capacity***—less friction loss, because there are no obstructions to the flow.
4. ***No damage to valve seats; no clogging of small orifices***—because there is no scale in the pipe to break off.
5. ***Greater strength at the weld.*** The additional rolling this pipe receives in the Scale Free Process increases the strength at the weld approximately 20 per cent, making the pipe particularly desirable for bending and coiling.

The Scale Free Process was invented and developed by National Tube Company and applied to NATIONAL Pipe (butt-weld sizes ⅛ to 3-inch). The advantages resulting from this special treatment, make NATIONAL Scale Free Pipe the outstanding value in pipe for gas service. To specify NATIONAL is assurance of longer life, better service and greater economy. Be thrifty—be safe—insist upon NATIONAL—

America's Standard Wrought Pipe

(Sizes ⅛-inch to 96 inches)

NATIONAL TUBE COMPANY · Pittsburgh, Pa.

Subsidiary of United States Steel Corporation

All National Galvanized Pipe is given a special chromate treatment to resist discoloration and the formation of white rust. This patented process preserves that smooth glistening surface or metallic luster characteristic of good galvanizing practice.

NATIONAL SCALE FREE PIPE *SPELLERIZED*

The Pendulum Starts Its Backward Swing

(Continued from page 46)

Furnace Conversion Burners	6	14
Furnaces	11	4
Ranges	34	88
Refrigerators	1	6
Storage Water Heaters	18	26
Tank Water Heaters	8	7
Space Heaters	11	14
New Yard Lines	31	28

August appliance (1932) sales exceeded August, 1931 by 10.69 per cent. Furthermore, our selling costs were less than half as much as the cost for August, 1931.

Industrial sales showed a healthy increase over last year's sales, and general business, in this territory, shows a perceptible increase. The general sentiment is that the worst is over. Collections are a little worse than last year which is to be expected at this time.

Associated Gas & Electric System. Serving 278,891 customers.

Gas output for the Associated System during the week of September 17, was 3,198,090 c. cu. ft., a gain of 2.5 per cent over the corresponding week of 1931. This is the first substantial weekly gain since March of this year. Gas output for the 12 months ended January 31, 1932 was 4.6 per cent below the previous 12 months' period. Succeeding 12 months' comparisons have been as follows: February—5.6 per cent; March—5.9 per cent; April—6.4 per cent; May—7 per cent; June 7.7 per cent; July—7.3 per cent; August—7.3 per cent. It is apparent that the declining trend that began early in the year has been arrested.

There are also many industries opening up in Associated territory which will mean future increase in consumption of gas. According to a recent survey, general business conditions are improving among most of the areas where Associated System operates. One hundred and seventeen factories have recently expanded their operations or resumed work after having been shut down. These instances of improvement have not been offset by other cases of curtailing.

Improvement is most pronounced in New England, eastern Pennsylvania, and southern New York among Associated areas. Most activity is in the silk industry. However, even in regions where no actual up-turn can be measured, a new spirit of optimism is noted.

San Diego Consolidated Gas and Electric Company, San Diego, Cal. Serving 56,939 customers.

Due to the fact that we are engaging in changing over to natural gas, it would be difficult to give any comparative figures which would show improvement in the past few months due to increased business activities.

While we have had an increase in output it is accounted for otherwise. There has been an increase in the sale of water heaters but this might be due to the coming introduction of the new fuel.

Assisting in Sales

(Continued from page 39)

Home Service workers will give encouragement to these housewives in demanding that the owners or operators of modern apartment houses install automatic gas ranges for their tenants.

"In communities of foreign born people Home Service work in the school is of value. Children are receptive to new ideas, and their parents are receptive to suggestions offered by their children. Consequently an unproductive oven may become a productive one if the children are familiar with its possibilities. This is accomplished in the preparation of jelly rolls and peanut loaves which appeal to children.

"With the company Home Service can be of great assistance to the Sales Manager. There are various ways in which this can be done, but it must be done if the efforts of the sales force among the customers are to bear the greatest returns. In this respect I will cite the Home Service Division of my own company.

"In The Brooklyn Union Gas Company Home Service is a division of the New Business Department. As a result the Home Service Director attends the weekly meetings of the New Business Department supervisors. At these meetings sales plans and policies are discussed, and the various supervisory heads present their opinions on the questions concerned. In this manner Home Service has a knowledge of what is going on in sales work while the other supervisors know what Home Service is doing.

"Our Home Service workers are trained to be sales minded and take advantage of every opportunity to speak to our customers on the advantages of automatic gas appliances. Although they do not make direct sales, they turn the names of prospects over to our sales force. Throughout, Home Service works hand in hand with the sales force, giving assistance and cooperation in selling approved gas appliances.

"This aid to sales is also extended to our dealers. As on appliance sales made direct by the company, a Home Service worker visits the home of the customer who purchases a range or refrigerator from the dealer. She acquaints Mrs. Customer with the modern features and shows the ease and comfort which modern approved gas appliances give the housewife.

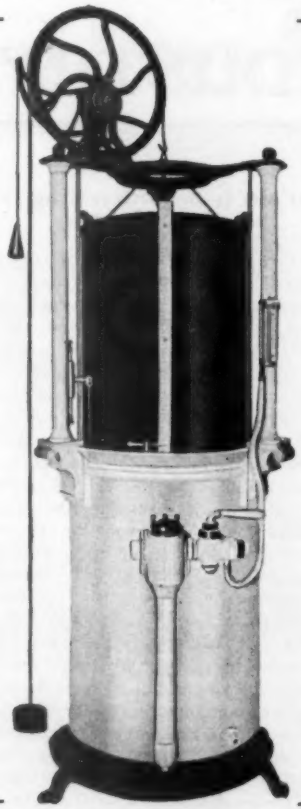
"Through this help the dealer is aided in the same manner as the sales force. When the dealer is able to promise the assistance of the gas company's Home Service Division he is given considerable assistance in selling a range or refrigerator. Thus Home Service assistance, given freely and completely to dealers, is one of the company's most convincing proofs of sincerity in the cooperative plan. It is concrete evidence and not abstract promise.

"Recently our salesmen completed a series of four lessons designed to familiarize them with the many uses to which a range or refrigerator can be put. After being instructed by representatives of the Home Service Division, the salesmen went into the kitchen and baked cakes, broiled steaks, cooked vegetables, made frozen desserts and otherwise studied at first hand the most efficient ways of using the two appliances.

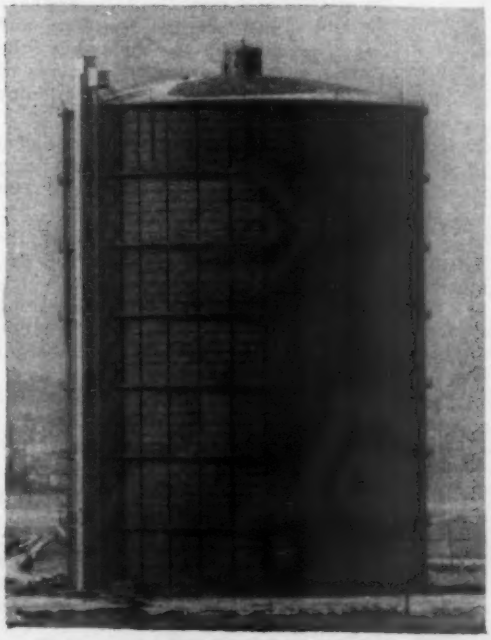
"Today Home Service workers are necessary to influence properly the woman in purchasing approved gas appliances for cooking, refrigeration and water heating. With the competition that is all about us we must exert effort to prove to Mrs. Customer that gas is the Great American Servant, the fuel to be used in the modern, efficient and economical household. To Home Service workers we must look for valuable aid in using discreetly the confidence instilled in Mrs. Customer to have her purchase approved gas appliances and find greater use for gas fuel. *That, indeed, is being a sales ally."*

SUPERIOR

Gas Meters
Provers
Service Cleaners
Diaphragms
Repairs



SUPERIOR METER CO.
167-41st Street
Brooklyn, N. Y.



"Top Feats"

as reported recently in TIME–The Newsmagazine

"To 'an even dozen engineering and technical accomplishments of the first order now being completed or undertaken,' the *Review* of the Massachusetts Institute of Technology last week pointed with pride . . . *Dams:* 1) The Dnieprostroy, Soviet Russia's much-dramatized dam on the Dnieper River . . . *Power:* 4) London Power Co.'s 80,000 kilowatt turbo-generator . . . *Buildings:* 6) No. 60 Wall Street, Manhattan, first sky-scraper to have double-deck elevators . . . 9) The world's largest new-type gas tank in Syracuse."—*TIME, July 18, 1932.*

"The world's largest new-type gas tank in Syracuse" is a Stacey-Klonne Gasholder designed and constructed by Stacey Brothers Gas Construction Co. and was completed this year. It is shown on this page.

Stacey-Klonne dry seal gasholders are original in appearance, advanced in ideas. They eliminate the liquid seal, pumps, heating and other equipment, and the expense of constant supervision.

Let us send you the Stacey-Klonne catalog. Bulletin No. 35.

STACEY BROTHERS
GAS CONSTRUCTION CO.
CINCINNATI, OHIO

20 North Wacker Drive
Chicago, Illinois

620 Hearst Bldg., San Francisco, California

24 State St.
New York City

NEWS of the GAS INDUSTRY

Governor Sterling of Texas Vetoes Emergency Bill Affecting Gas Companies

A bill passed by the Texas Legislature which would have empowered the Railroad Commission to make inventories of gas properties in towns of less than 5000 population for rate-fixing purposes has been vetoed by Governor Sterling.

Gas Wells Brought In in Indiana

Four gas wells with a total daily output of 5,000,000 cubic feet and six oil wells producing 420 barrels a day were the rewards of drillers in Indiana during September, according to Paul F. Simpson, state gas supervisor. The largest gas well, with an output of 2,500,000 cubic feet, was completed in Pike county.

New Type of Sign Available

During its activities for the present year, the Window & Store Display Committee had the occasion to inspect a new medium of display—known as the Depthograph—a device which utilizes a new process of photography showing the third dimension in a glass transparency. Objects photographed and displayed by this device stand out in clear relief, the detail in depth and contour being such as to create an illusion that the object itself is being displayed.

After careful consideration, it was decided that cooperative aid should be given to the manufacturers of this device by members of the committee in producing a series of pictures for the gas industry. A series of 12 pictures has been inaugurated to be available on a rental basis whereby a new picture is sent each month to each subscriber for use in the special display frame furnished for this purpose.

For further information regarding the device and the service, inquiries may be addressed to the Secretary of the Commercial Section, A. G. A. Headquarters, 420 Lexington Avenue, New York, N. Y.

U. S. Pipe & Foundry Co. Move Philadelphia Offices

United States Pipe and Foundry Company have removed their Eastern Sales Offices from 905-9 Morris Building, 1421 Chestnut Street, to 1624-30 Lincoln-Liberty Building, N. E. Corner Broad and Chestnut Streets, Philadelphia, Pa.

DuPont Issues Interesting Booklet on Tetralin

"Tetralin for the Gas Industry" is the title of a 24-page booklet recently published by the Fine Chemicals Division of E. I. duPont de Nemours Company, Inc. Its contents are concerned with a description of the chemical, Tetralin, and its use in both the natural and manufactured branches of the gas industry.

The booklet goes on to define the causes for various stoppages in mains and services and the remedial effects of Tetralin on the same. As stated, this chemical can be used for naphthalene stoppage, clearing up gum deposits, for scrubbing, treatment of natural and manufactured gases, for certain functions in recovery of naphthalene and light oils, for fogging, etc.

Included in the pages are cuts of apparatus for removal of naphthalene from city gas and apparatus for the recovery of casinghead gasoline from natural gas, as well as a curve showing the vapor tension and solubility of Tetralin.

The qualifications of Tetralin are described in the booklet as follows:

1. Tetralin, being a close chemical relative of naphthalene, has the power of absorbing larger quantities of naphthalene than any of the other solvents in present use. This solvent power at ordinary temperatures is approximately three times as great as that of gas oil or gasoline, and immediately indicates the effectiveness of the use of Tetralin.
2. Tetralin, being a definite chemical compound and having undergone purification treatment in its manufacture, contains no naphthalene as an impurity.
3. The vapor pressure of Tetralin makes it ideal for use as a solvent for naphthalene and gums. Since the boiling point of Tetralin is rather high (206° C.), its volatility is fairly low at ambient temperatures; thus considerable amounts of this material are not required to saturate the gas. However, even if large quantities are added, the effect of the Tetralin on the gas will be to slightly raise the calorific value. On the other hand, Tetralin has a volatility high enough so that there will always be a sufficient quantity of Tetralin present to absorb the naphthalene from the gas. The dew points of naphthalene and Tetralin are so close that whenever there is a condensation of naphthalene, there will be a corresponding condensation of Tetralin and these two will precipitate in mutually soluble proportions, so that it will be impossible to get crystallized naphthalene in the mains.
4. Tetralin has a very low solidification point, and will never freeze and cause difficulties even under the extreme conditions sometimes encountered in the gas industry.
5. Tetralin is a very stable chemical compound, and will not resinify or polymerize to form gums. Since it is a true chemical compound, and not a mixture, it will always have the same composition, will not change on standing, and will not develop any troublesome features.
6. Tetralin is an ideal fogging agent, as with it a fine persistent fog can be obtained whose lasting qualities are superior to those found with ordinary gas-oil fogs. The low viscosity and specific gravity, approximately the same as water, are other features of Tetralin, which are of especial value for use in fogging.
7. Tetralin acts very quickly to dissolve solid deposits in the gas mains, being considerably faster in its action on napthalene than other solvents.
8. Tetralin is a very cheap solvent, the quantities required to treat the gas, as will be shown, adding very little to the cost of the gas, and saving several times its cost in prevention and elimination of complaint charges alone.

The advantages claimed for the use of Tetralin are quoted:

1. Complete and effective removal of naphthalene, with the consequent freedom from all difficulties arising from the naphthalene nuisance.
2. Prevention of any gum difficulties.
3. An effective corrosion-preventing coating on the inside main surface, which will eliminate the rust and dust nuisance.
4. Means for the recovery of naphthalene, benzol, and toluol.
5. Effective lubrication of leather diaphragms and joint packing materials.
6. Better service to the consumer.
7. Considerable saving in service charges accruing from consumer's complaints.

Copies of this booklet will be sent on request to E. I. duPont de Nemours & Company, Inc., Fire Chemicals Division, 260 W. Broadway, New York, N. Y.

Convention Calendar

November

16-18 International Acetylene Association, Philadelphia, Pa.

December

5-10 Tenth National Exposition of Power & Mechanical Engineering, Grand Central Palace, New York, N. Y.

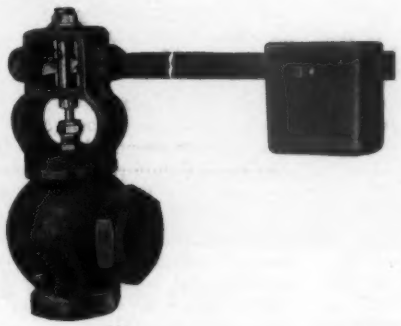
6- 9 Gas Meter Short Course and Conference, under the joint auspices of the Mid-West Gas Association and Iowa State College, Ames, Iowa.

January

23-25 39th Annual Meeting American Society of Heating and Ventilating Engineers, Hotel Gibson, Cincinnati, Ohio.

Fulton Gas Fuel Steam Boiler

Governor Stops Waste



By regulating the steam so as to prevent "blowing off" and by maintaining any given pressure of steam desired from 1 to 150 pounds, it prevents any waste or loss of energy. Steam never falls *below* the working pressure when you use a Fulton Gas Governor.

Write for our interesting Steam Boiler Bulletin, which describes it fully.

The Chaplin-Fulton Mfg. Company

ORGANIZED 1884—OLDEST BUILDERS OF GAS REGULATORS IN THE COUNTRY. BUILT IN ALL SIZES, FROM 1 INCH TO 24 INCHES: FOR ALL SERVICES, 1 OZ., UP TO 2,000 LBS. PRESSURE TO SQUARE INCH.

28-40 Penn Avenue **Pittsburgh, Pa.**

BAROMETERS

PHILADELPHIA, THE WORKSHOP OF THE WORLD
has 14,000 Manufacturing Establishments of which many have World-Wide Reputations.

"PRINCO" STANDARD FORTIN MERCURIAL BAROMETERS

are in World-Wide use because they, too, have a "World-Wide Reputation"

THEY ARE GOOD BAROMETERS
THEY ARE REASONABLE IN PRICE

For more than a decade they have been made in such manner that they can be shipped safely and successfully wherever there is a common carrier. This has been recognized as an achievement in Barometry.

PRECISION THERMOMETER & INSTRUMENT COMPANY

1439 BRANDYWINE STREET - - - - - PHILADELPHIA, PA.

Personals

C. C. Atwood, Assistant Chief Engineer, won the championship in The Brooklyn Union Gas Club golf tournament when he defeated Robert W. Cook, five up and four to go, in the 36-hole finals which ended the recent tourney played at the Mammoth Golf Course.

Thirty-four employees participated in the tourney. Mr. Atwood was presented an order on a sporting goods store, good for $10 in merchandise, and Mr. Cook, as runner-up, was given a similar order for $5 in merchandise.

W. W. Winter, of the Atlanta Gas Light Company, has been named subcommittee chairman for Atlanta for the utilities division of the Share-the-Work movement recently inaugurated by the federal reserve banking and industrial committees. At the same time Norman Thomas, of the Macon Gas Light Company, has been appointed to the same position in Macon, Ga.

Frank W. Smith was elected a member of the board of trustees of the Consolidated Gas Company, October 27. Mr. Smith is president of The New York Edison Company and the United Electric Light and Power Company, having been elected on January 28 of this year. He was formerly vice-president of both companies. He is chairman of the board of the New York and Queens Electric Light and Power Company. Mr. Smith began his service with the electric companies in this city 52 years ago, with the United States Illuminating Company, predecessor of the United Electric Light and Power Company.

Robert W. Hendee has been elected president of the Oklahoma Natural Gas Corporation to succeed E. A. Olsen, who resigned to accept an executive position in the utility field in the East. The change was made effective October 22nd.

"The selection of Mr. Hendee as my successor is particularly pleasing to me," said Mr. Olsen. "It is upon him that I have leaned most heavily in the executive direction of the company; he is a long-time resident of Oklahoma and he is from the Oklahoma Natural ranks."

Mr. Hendee, as senior vice-president of the company, recently removed to Oklahoma City in charge of the western division. He will return to Tulsa upon the naming of his successor in the Oklahoma City post. He has a national reputation as a gas engineer and executive.

"No changes in the personnel or policies of the company are contemplated," said Mr. Hendee. "We will continue to give the finest gas service in the entire United States, and shall maintain an attitude of fairness and frankness toward those whom we serve, as well as the public at large. Our company is a vital factor in the economic structure of Oklahoma, and our activities will continue to be governed by a feeling of intense responsibility for the comfort and welfare of our customers."

Frank E. Kistler was elected chairman of the Board of Directors, Oklahoma Natural Gas Corp., on October 22nd.

Mr. Kistler has been chairman of the finance committee of the Oklahoma Natural and is a resident of Tulsa. He was the organizer and principal owner of the Producers and Refiners Corporation, which a few years ago was purchased by the Prairie Oil & Gas Company. He has been associated with Oklahoma oil and gas business for more than twenty years, is widely known in the state's oil, financial and social circles, and has a wide acquaintance among business men of this state, as well as throughout the Mid-Continent territory. He is a director of the Mid-Continent Petroleum Corporation, and has been a member of the American Petroleum Institute since the date of its organization.

F. L. Carlisle, president of F. L. Carlisle & Co., 15 Broad Street, and chairman of the Board of the Consolidated Gas Company of New York, 4 Irving Place, has accepted the chairmanship of the Public Utilities Operating Companies group to help the Emergency Unemployment Relief Committee raise funds for unemployment relief this winter, according to an announcement by H. B. Lamy, Jr., executive chairman of the committee's Commerce and Industry Division.

David Nyden and **Joseph Tambascio** of the West Chester (N. Y.) Lighting Co., were instrumental in reviving a young woman, a school teacher, after she had been trapped in a monoxide gas filled garage. Nyden is a fitter and Tambascio a helper in Port Chester.

Keith Clevenger, for the past three years director of publicity and advertising for the American Gas Association, New York City, has resigned, according to an announcement by Alexander Forward, managing director of the Association.

Mr. Clevenger will enter the field of gas merchandising and advertising promotion. His headquarters will be for the time being at his present address, 420 Lexington Avenue, New York City.

Prior to joining the staff of the American Gas Association, in 1929, Mr. Clevenger had been identified with the Henry L. Doherty organization as director of public relations for their oil and gas properties in the Southwest, as well as other gas, electric and telephone utilities affiliations. He brings to his new work a background of more than 20 years of active newspaper, trade association, advertising and public utility acquaintance and experience.

Obituary

A. H. Thorn

A. H. Thorn, Manager of Industrial Relations, Peoples Gas Light & Coke Co., Chicago, Ill., died suddenly October 11 while attending the convention of the American Gas Association. Mr. Thorn was 55 years old and had been in the service of the Peoples Gas Light & Coke Co. for more than 38 years. He started as an office boy and raised himself, so that during his career he occupied several important positions with the gas company including assistant superintendent of the general order department, assistant to the manager of industrial relations, and finally manager of industrial relations.

Mr. Thorn is survived by his widow and three daughters.

STATEMENT OF THE OWNERSHIP, MANAGEMENT, CIRCULATION, ETC., REQUIRED BY THE ACT OF CONGRESS OF AUGUST 24, 1912, of American Gas Journal, published monthly at East Stroudsburg, Pa., for October, 1932.

State of New York } ss.
County of New York }

Before me, a Notary Public in and for the State and county aforesaid, personally appeared S. G. Krake, who, having been duly sworn according to law, deposes and says that he is the Manager of the American Gas Journal and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in section 411, Postal Laws and Regulations, printed on the reverse of this form, to wit:

1. That the names and addresses of the publisher, editor, managing editor, and business managers are: Publisher, American Gas Journal, Inc., 53 Park Place, New York City; Editor, H. M. Riley, Plandome, L. I., N. Y.; Managing Editor, none; Business Manager, S. G. Krake, Jamaica, L. I., N. Y.

2. That the owner is: (If owned by a corporation, its name and address must be stated and also immediately thereunder the names and addresses of stockholders owning or holding one per cent or more of total amount of stock. If not owned by a corporation, the names and addresses of the individual owners must be given. If owned by a firm, company, or other unincorporated concern, its name and address, as well as those of each individual member, must be given.) S. G. Krake, Jamaica, L. I., N. Y.

3. That the known bondholders, mortgagees, and other security holders owning or holding 1 per cent or more of total amount of bonds, mortgages, or other securities are: (If there are none, so state.) None.

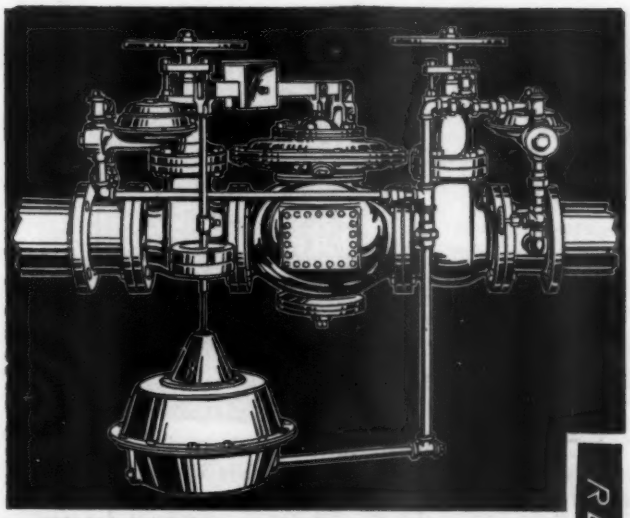
4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company but also, in cases where the stockholder or security holder appears upon the books of the company as trustee or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting, is given; also that the said two paragraphs contain statements embracing affiant's full knowledge and belief as to the circumstances and conditions under which stockholders and security holders who do not appear upon the books of the company as trustees, hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association, or corporation has any interest direct or indirect in the said stock, bonds, or other securities than as so stated by him.

5. That the average number of copies of each issue of this publication sold or distributed, through the mails or otherwise, to paid subscribers during the six months preceding the date shown above is ——. (This information is required from daily publications only.)

S. G. KRAKE,
Business Manager.

Sworn to and subscribed before me this 28th day of September, 1932.

(Seal) ROZELLA BENNETT.
(My commission expires March 30, 1933.)



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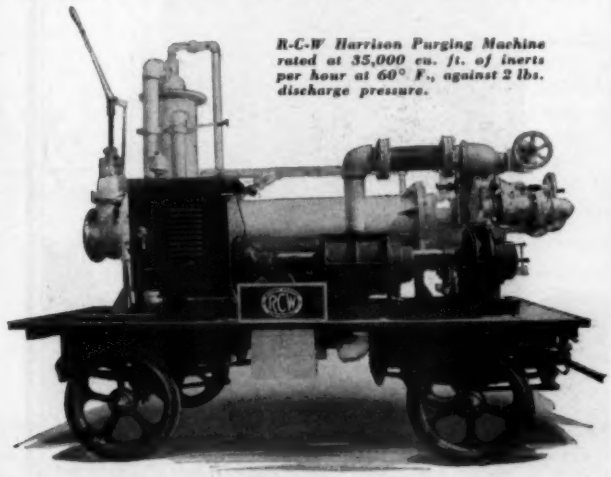

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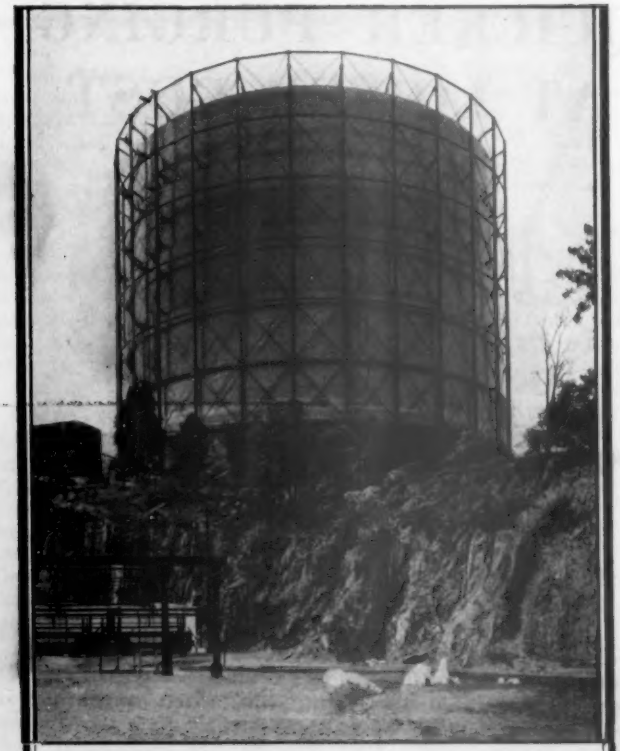

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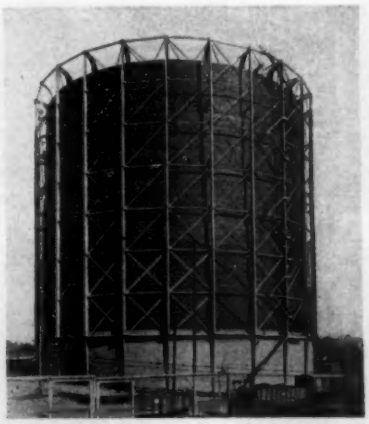

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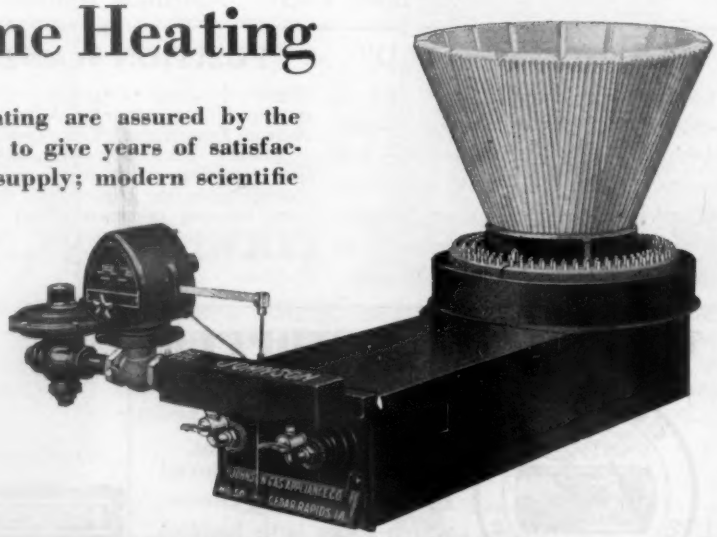

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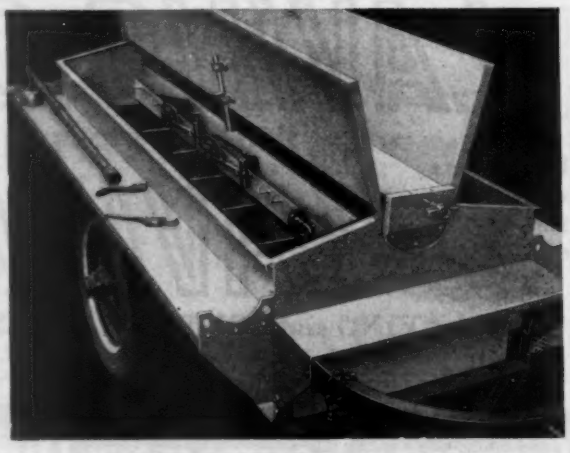

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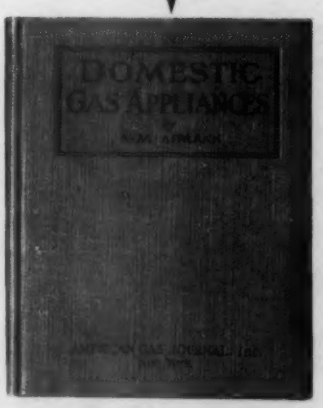

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